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SYNTHESIS AND X-RAY POWDER DIFFRACTION STUDIES: METAL COMPLEXES (Co(II), Ni(II) AND Cu(II)) OF SCHIFF BASE LIGAND 4-BROMO-2-CHLORO-6-[(1Z)-N-(PHENYL) ETHANIMIDOYL] PHENOL

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ABSTRACT

Schiff bases are an important class of organic compounds, which play an important role in medicinal and pharmaceutical applications. Co(II), Ni(II) and Cu(II) complexes with bidentate Schiff base ligand, 4-bromo-2-chloro-6-[(1Z)-N-(phenyl) ethanimidoyl] phenol (BCEP) have been successfully synthesized. The structural characterization of the synthesized metal complexes have been estimated by analyzing powder X-ray diffraction technique. It reveals that Co and Cu metal complexes crystallize in monoclinic system with $P 1 2_1 1$ and $P 1 2_1/a$ space group respectively, whereas Ni metal complex crystallizes in triclinic system with $P\bar{1}$ space group.

Keywords: Schiff bases, metal complexes, powder X- ray diffraction study

INTRODUCTION

Schiff bases are condensation products of primary amines and carbonyl compounds and they discovered by a German chemist, Nobel Prize winner, Hugo Schiff in 1864. Structurally, Schiff base (also known as imine or azomethine) is an analogue of a ketone or aldehyde in which the carbonyl group (C=O) has been replaced by an imine or azomethine group. Schiff base ligands are essential in the field of coordination chemistry, especially in the development of complexes of Schiff bases because these compounds are potentially capable of forming stable complexes with metal ions¹. The individual Schiff bases are considered to be promising antifungal medicines². Isatin Schiff base ligands are marked by antiviral activity, and this fact is very useful in the treatment of HIV³. In addition, it is also found that these compounds have anticonvulsant activity and may be included in the anti-epileptic drugs⁴. Due to the presence of the imine group, the electron cloud of the aromatic ring and electronegative nitrogen, oxygen and sulfur atoms in the Schiff bases molecules, these compounds effectively prevent corrosion of mild steel, copper, aluminum and zinc in acidic medium⁵. Schiff bases and Mannich bases of isatin are known to possess a wide range of pharmacological properties including antibacterial, anticonvulsant, antifungal and antiviral activities⁶⁻⁹. Schiff's bases are also important compounds owing to their wide range of

industrial applications¹⁰. As a part of our ongoing research on synthesis of novel compounds and characterization by X-ray diffraction studies¹¹⁻¹³, here we report the synthesis and characterizations of metal complexes (Co, Ni and Cu) of schiff base ligand 4-bromo-2-chloro-6-[(1Z)-N-(phenyl) ethanimidoyl] phenol.

EXPERIMENTAL

Synthesis: General Preparation of Metal chelates (Co(II), Ni(II) and Cu(II)) of Schiff base ligand 4-bromo-2-chloro-6-[(1Z)-N(phenyl) ethan imid oyl] phenol (BCEP)

The appropriate methanolic solution of transition metals (Co, Ni and Cu) (0.01mol, 10 ml) and schiff base ligand (BCEP) (0.02mol, 20 ml.) are taken in a 1:2 (metal/ligand) ratio. PH is maintained during the course of the reaction by adding few drops of liquid N₂. The reaction mass is refluxed for 3-4 hours on a water bath. After completion of the reaction, it is cooled to room temperature and solvent is evaporated naturally. Precipitated colored complex is filtered and washed with methanol: water (1:1) mixture, recrystallized from methanol and dried over anhydrous CaCl₂ in desiccators. It is further dried in an electric oven at 50-70 °C. The chemical diagram of synthesized metal chelates (Co(II), Ni(II) and Cu(II)) of Schiff base ligand 4-bromo-2-chloro-6-[(1Z)-N-



OPTICAL AND MAGNETIC PROPERTIES OF SCHIFF BASED TRANSITION METAL COMPLEXES OF (Z)-5-(METHOXYMETHOXY)-2-(1-(PHENYLIMINO)ETHYL)PHENOL AND (Z)-2-BROMO-4-CHLORO-6-(1-((4-NITROPHENYL)IMINO)ETHYL)PHENOL DERIVATIVES

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ABSTRACT

Acetophenol and aromatic amine derivatives are antibacterial agents. The biological activities of metal complexes differ from those of either ligand or the metal ions. An increase or decreases in biological activities have been reported for several transition metal complexes. Novel metal Copper (II) (B1) and Nickel (II) (M4) complexes of Acetophenol and aromatic derivatives have been synthesized by Schiff based method. Optical properties investigated by UV-VIS spectroscopy in the range 200-800 nm and the photoluminescence study of these chelates has been carried out for the emission properties. Moreover, the Magnetic Susceptibility study is also performed to explore the magnetic response of these chelate against magnetic field.

Keywords: Antibacterial agents, Metal complexes, Optical and magnetic properties.

INTRODUCTION

Compounds with the structure of –C=N– (azomethine group) are known as Schiff bases, which are usually synthesized by condensation of primary amines and active carbonyl groups. Schiff bases are an important class of compounds in the medicinal and the pharmaceutical field, including antibacterial [1, 2], antifungal [3, 4], and antitumor activity [5, 6]. Acetophenol and aromatic amine derivatives have been found wider use as antibacterial agents. Biological activity of metal complexes differs from those of either ligands or the metal ions and increased and or decreased biological activities have been reported for several transition metallic complexes [7]. The individual Schiff bases are considered to be promising antifungal, anticonvulsant activity for treatment of HIV. As a part of our ongoing research work novel compounds to investigate the structure function relationship, we report here the magnetic and optical properties of the novel metal complexes of (Z)-5-(methoxymethoxy)-2-(1-(phenylimino)ethyl)phenol [B1] and (Z)-2-bromo-4-chloro-6-(1-((4-nitrophenyl)imino)ethyl)phenol [M4] derivatives.

METHODOLOGY

SYNTHESIS

The methanolic solution of transition metals copper (II) and nickel (II) (0.01mol, 10ml) and Schiff bases ligand (Z)-5-(methoxymethoxy)-2-

(1-(phenylimino)ethyl)phenol) and (Z)-2-bromo-4-chloro-6-(1-((4nitrophenyl)imino)ethyl)phenol derivatives have been taken in 1:2 (metal /ligand) ratio. The pH solution has been maintained during the course of the reaction by adding few drops of liq.NH₃/glacial acetic acid. The reaction mass was refluxed for 2-3 hours on a water bath. After the end of reaction, it was cooled to room temperature and solvent was allowed to evaporate. Precipitated colored complexes was filtered and washed with methanol: water (1:1) mixture, recrystallized from methanol and dried over anhydrous CaCl₂ in desiccators. It was further dried in an electric oven at 50-70°C. The chemical structure of synthesized metal chelates [Cu (II), Ni (II)] of Schiff base ligand (Z)-5-(methoxymethoxy)-2-(1-(phenylimino)ethyl)phenol) and (Z)-2-bromo-4-chloro-6-(1-((4-nitrophenyl)imino)ethyl)phenol derivatives are as shown in **Figure 1(a)&Figure1(b).**

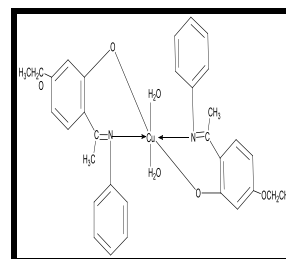


Figure: 1(a) The chemical diagram of compound B1.



STUDIES ON METAL CHELATES OF HETEROCYCLIC AZO LIGAND DERIVED FROM BENZOESORCINOL

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Abstract

Some new transition metal chelates have been synthesized through the coupling reaction between diazonium salt of 2-Amino-5-(furan-2-yl)-1,3,4-oxadiazole and benzoesorcinol in presence nitrosyl sulfuric acid. The synthesized compounds were characterized on the basis of IR, ¹H NMR, TGA, Reflectance spectral study and magnetic measurement data. Also the antifungal activity of all compounds suggests the good to moderate activity against the all four employed strains.

Keywords

Oxadiazole, Benzoesorcinol, azo ligand, spectral studies, TGA and antifungal activity.

Introduction

A large numbers of heterocyclic azo ligands have been formulated by many researchers.¹⁻³ Many of these compounds serve useful in field of thermal and optical properties. This ligand also widely applied in areas such as optical recording medium, food, cosmetics, toner, inkjet printing, biological activities and textile industries.^{1,4-8} Also, the heterocyclic azo ligands considering interest due to their promising biological activities.⁷⁻⁹ In recent years metal chelates of these azo ligands has assumed a new importance in organometallic and coordination metal chemistry.¹⁰⁻¹³ These metal chelates have been given increasing interest due to their promising geometrical and electronic properties in field of molecular memory storage. Metal chelates of azo dyes are found more light-stable and thermally stable than its parent azo ligands which recommend the use of metal chelates over its parent heterocyclic azo ligands in the field of high-density optical recording materials.^{14,15} Also the biological studies of the metal chelates suggest the advantage of coordination of metal ions to the heterocyclic azo ligands.^{16,17}

Inspired by the above review and in continuation of our previous work¹⁸ the present paper comprises a synthesis, characterization and chelating properties of metal chelates derived from heterocyclic azo ligand containing benzoesorcinol and oxidazole derivative. Also, antifungal assay was examined against four fungal strains using agar dilution technique.



TRANSITION METAL CHELATES OF AZO LIGAND CONTAINING SALICYLIC ACID: SYNTHESIS, CHARACTERIZATION AND BIOLOGICAL EVALUATION

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ABSTRACT

A series of M(II)-azo ligand chelates with various transition metal ions were synthesized. The azo ligand i.e. 5-((5-(furan-2-yl)-1,3,4-oxadiazol-2-yl)diazenyl)-2-hydroxybenzoic acid were synthesized by coupling reaction between diazonium salt of 2-amino-5-(furan-2-yl)-1,3,4-oxadiazol and salicylic acid. The structure of azo ligand was established by IR, mass, elemental analysis and NMR spectral studies. The reflectance spectral study and magnetic measurement studies reveals that octahedral geometry for synthesized metal chelates. All the synthesized compounds were screened for their antifungal activity, which shows potent inhibitory action against all employed fungal strains.

KEYWORDS

2-amino-5-(furan-2-yl)-1,3,4-oxadiazol, salicylic acid, diazotization reaction, spectral studies, Antifungal activity.

INTRODUCTION

The azo compounds are applicable in various biological fields since several decades. Azo compounds are well used for their medicinal importance and pharmaceutical applications such as antibacterial, antifungal, antidiabetics, antiseptics, antineoplastics, antibacterial and antitumor. They are also involved in a many biological applications such as inhibition of DNA, RNA, carcinogenesis, protein synthesis and nitrogen fixation [1-5].

Recently, the study of coordination compounds of heterocyclic azo ligand has been made much progress. These compounds are known for their semi conducting catalytic properties, thermal stability, in protective coating, and also for some biological properties [6-8]. Such coordination compounds are mostly derived from bichelating ligands in which metal ions and chelating agents are coordinate alternatively. Azo derivatives of salicylic acid show good biological activities and also act as good metal chelating agent [9,10]. The area in which, the coordination compounds having different heterocyclic azo ligands have been reported by us in earlier articles. In extension of earlier work [11-13], the present article comprises the study of coordination compounds based on heterocyclic azo ligand containing salicylic acid with 1,3,4-oxidazole segment. Also the chelating and antifungal properties of



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Studies on Transition Metal-azo Ligand Chelates

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ABSTRACT

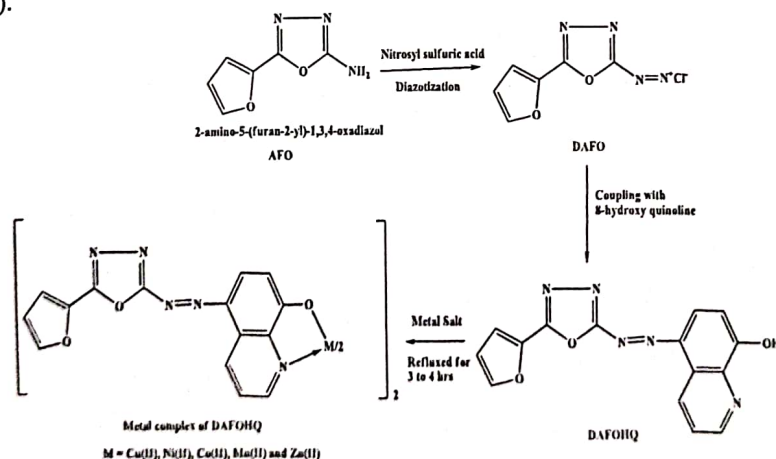
The new azo ligand chelates of Cu(II), Ni(II), Co(II), Mn(II), Zn(II) with 1,3,4-oxadiazole and 8-hydroxyquinoline were synthesized and further characterized by FT-IR, elemental analysis and Metal: Ligand ratio as well as reflectance spectra and magnetic moment measurement. Earlier the synthesized ligand was characterized by using Mass, IR and NMR spectroscopy. Analysis of Metal: Ligand ratio suggest all complexes are found in 1:2 (M:L) ratio. The work also includes antifungal activity of the azo-ligand metal chelates was studied against four types of fungal strains which suggest the advantage of coordination to such type of heterocyclic azo-ligand.

Keywords: 2-amino-5-(furan-2-yl)-1,3,4-oxadiazol, 8-Hydroxyquinoline, Metal, Ligand ratio, Spectral studies, Conductivity measurement, Antifungal properties

INTRODUCTION

Azo ligands are generally synthesized by coupling reaction of diazonium salts with heterocyclic compounds [1-3]. Azo ligand containing O, N donor atoms well known for its superior chelating properties with the all types of metal ions and showed significant biological activities [4,5]. The interest around the azo compounds sustain due to their effortless procedure, cost-effectiveness and good fastness properties [6,7]. Furthermore, the coordination compounds of azo ligands have been studied extensively for their essential role in industry, life processes and also in technology field [8-10]. The coordinating ability of 8-HQ and its metal chelates has been well known from its existence and proven significant in the different field such as, biological, pharmacological, analytical and industrial [11-13].

In continuation of our previous works on azo-ligand metal chelates and their various properties [14-16], we have synthesized a new azo-ligand namely 5-((5-(furan-2-yl)-1,3,4-oxadiazol-2-yl)diazonyl)quinolin-8-ol (DAFOHQ) and characterized on the basis of elemental analysis, mass spectrometry, ¹H NMR spectral studies. Further the chelating and biological properties of all synthesized compounds were explored and discussed in detailed (Scheme 1).



Scheme 1: General synthesis of azo-ligand metal chelates

EXPERIMENTAL

2-Amino-5-(furan-2-yl)-1,3,4-oxadiazol (AFO) was prepared according to reported method [17]. All other chemicals and solvents used were of laboratory grade. The elemental contents were determined by Thermo Finigen Flash 1101 EA (Italy) the metals were determined volumetrically by Vogel's method [18]. To a 100 mg chelate sample, each 1 ml of HCl, H₂SO₄ and HClO₄ were added and then 1 g of NaClO₄ was added.



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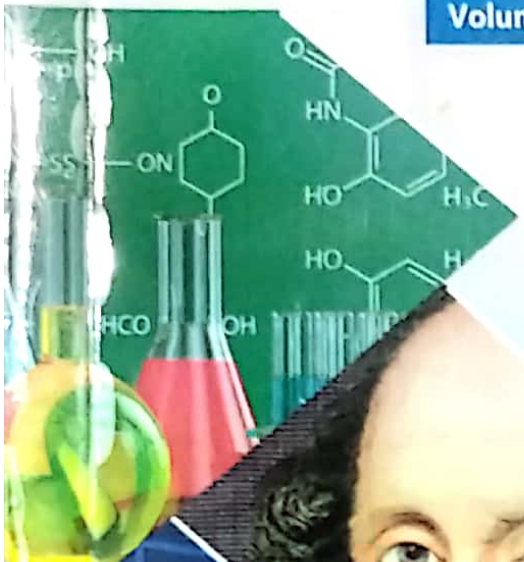
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Studies on Novel Ion-exchange Resin and its Application for Industrial Effluent Treatment

J. M. Shah & J. A. Chaudhari

ABSTRACT

The Chloromethylated styrene-divinyl benzene [CM-SDVB] treated with 8-aminonaphthalene-1,3,6-trisulfonic acid in THF in concentrated NaOH (pH 9-10) at room temperature for 8 hrs. The ion exchange resin designated as styrene-divinylbenzene 8-aminonaphthalene-1,3,6-trisulfonic acid (SDVB-ANSA) was characterized by IR spectral studies and thermogravimetry. The SDVB-ANSA sample was monitored for its ion-exchanging properties. Batch equilibration method has been adopted for such properties. Based on this the SDVB-ANSA resin was employed for removing the metal ions from effluent coming out of electroplating industry.

Key Words : Environmental Analysis , FTIR , Ion Exchange, Batch equilibrium method, Sulfanilic acid, Styrene-divinylbenzene.



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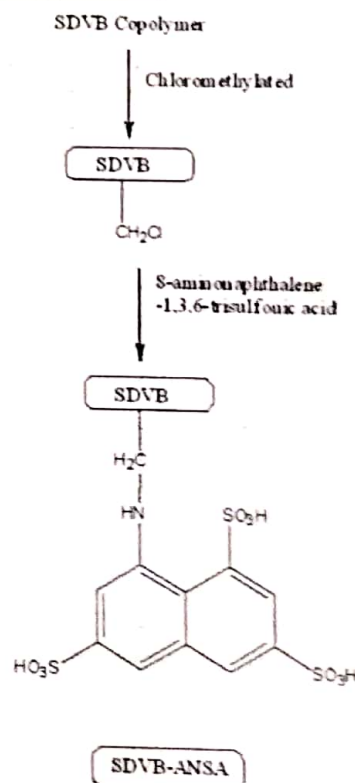


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The effluents from mines and metal industries set up the serious problems in removal of heavy toxic metal ions. The contents of these metals in effluent are almost above the valid limit[1-3]. The contents of this metal can be reduced by treatment of lime, but result is not satisfactory. Thus ion-exchange technique has been proved very useful in this context. The ion exchange resin can be used for metal extraction from ore, analytical reagent, and separation of metal ion and deionization of water[4-10]. Most of commercial ion-exchange resins are sulfonated polystyrene-divinylbenzene copolymer[11-12]. The use of complex ion-formation in ion-exchange resin has been prepared to solve the problem[11,12]. Recently it has been adopted [13,14] and study of the new ion-exchange resin. However the ion-exchange resin based Chloromethylated styrene-divinyl benzene [CM-SDVB] with 8-aminonaphthalene-1,3,6-trisulfonic acid has been repeated by present author[15,16]. In continuous of this

work[15,16] the present paper deals with the metal industrial effluent treatment study of SDVB- ANSA resin. The synthetic route is below.



EXPERIMENTAL

Materials

All the chemicals including SDVB were obtained from local market. The Chloromethylated styrene-divinyl benzene[CM-SDVB] was prepared by reported method[17]. It's chlorine content was found 3.0 mmol/g (10.65%) and 3.0 mmol/g Naphthalene Sulphonic acids. All the chemicals used were of either pure or analytical grade.

Synthesis of SDVB- Naphthalene Sulphonic acid Resin

To a suspension of CM-SDVB (100g) as per Cl content in THF (100ml) solvent was treated with Naphthalene Sulphonic acids (0.3 mole) at room temperature. Then the mixture was refluxed for 5 hrs. The Precipitated SDVB-Naphthalene Sulphonic acids were filtered off, wash with water and air-dried.

Measurements

The S content of all SDVB- ANSA sample were estimated by TF-EA-1101 (Italy). The IR spectra were recorded on Nicolet 760 FTIR Spectrophotometer method[18]. The batch equilibration method was adopted for the ion-exchanging properties[19,20]. The evaluation of the influence of different electrolytes on metal uptake by the polymer, the rate of metal uptake under specified conditions and distribution of various metal ions of different pH values were carried out following the details of the procedures described earlier Table-1.

Effluent samples containing heavy metal ions were collected from industrial situated in Gujarat zone. There samples contained heavy metal ions along with Mg²⁺, K⁺, Na⁺, SO₄²⁻, F⁻ paper pulp, clay and turbidity. The characteristics of industrial effluents are reported in Table-4.

The procedure adopted to remove heavy metal ions is as follows: 50 ml aliquots of effluents were taken in clean beakers. In each case the pH was adjusted from 6 to 10 with lime 40 mg. SDVB- ANSA was added and solution was stirred with magnetic stirrer for about 10 minutes.

The solution was transferred to 100 ml measuring cylinder and pH was again checked and allowed to stand for four hours. The whole mass was filtered through whatman filter paper No. 40. The whole mass was filtered after necessary treatment were used for estimation of metal ions by atomic absorption [8-23]. Spectrophotometer model AAS 175. Air acetylene mixture was used as fuel. The results are reported in Table-4.

RESULTS AND DISCUSSION

The polymer sample SDVB-ANSA was in form of dark brown powder and insoluble in common organic solvents. It swells up to some extent in conc. NaOH solution. It did not melt up to 290°C. The S content is 15.21% and consists with the predicted structure. The IR spectrum comprises the bands due to secondly NH (3421 cm⁻¹), -CH₂ group (2930, 2850, 1430 cm⁻¹) and aromatic (3030, 1500, 1689 cm⁻¹). The TG (thermo gram) of SDVB- ANSA show a single step degradation. The degradation starts around 260°C, loss rapidly between 300 to 540 and almost lost 85% at 620°C.

Ion-Exchange properties

The examination of data of ion exchange properties presented in Table-1 reveals that the amount of metal ions taken up by a given amount of the SDVB- ANSA polymer depends upon the nature and concentration of the electrolyte (ClO₄⁻, NO₃⁻, Cl⁻ and SO₄²⁻) present in the solution. The amounts of metal ions (Fe³⁺, Cu²⁺ and Ni²⁺) taken up by the polymer sample increase with the increase in concentration of ions taken up by the polymer sample increase with the increase in concentration of electrolytes like chloride, chlorate and nitrate but decrease with the increase in concentration of the sulfate ions.

Table 1: Evaluation of the influence of different electrolytes in the uptake of several metal ions; ([M (NO₃)₂] = 0.1 mole/l³)

Metal ions	pH	Electrolyte	Adsorption of mmol. 10 ² of the metal ion on SDVB-ANSA polymer			
			NaClO ₄	NaNO ₃	NaCl	Na ₂ SO ₄
Cu ²⁺	5.5	0.01	0.17	0.13	0.18	0.34
		0.1	0.26	0.19	0.20	0.31
		1.0	0.53	0.30	0.34	0.27
Ni ²⁺	5.5	0.01	0.18	0.19	0.18	0.08
		0.1	0.6	0.56	-	0.07
		1.0	0.66	0.72	0.64	0.16
Fe ³⁺	2.75	0.01	0.12	0.13	0.02	0.23
		0.1	0.27	0.19	0.07	0.07
		1.0	0.35	0.25	0.28	0.04
UO ₂ ²⁺	4.0	0.01	0.15	0.19	0.16	0.30
		0.1	0.26	0.26	0.20	0.21
		1.0	0.55	0.50	0.27	0.22
Co ²⁺	5.5	0.01	0.10	0.12	0.15	0.13
		0.1	0.12	0.10	0.14	0.08
		1.0	0.06	0.10	0.06	0.06
Mn ²⁺	5.5	0.01	0.21	0.25	0.25	0.14
		0.1	0.15	0.22	0.22	0.06
		1.0	0.10	0.17	0.13	0.02

a. Volume of electrolyte solution 40 ml, time 24th, volume of metal ion solution 1 ml, Temp. 25°C. Wt. of SDVB- ANSA polymer 25 mg.

Rate of metal uptake

The rates of metal absorption by the SDVB- ANSA sample were measured for UO_2^{+2} , Fe^{+3} , Cu^{+2} and Ni^{+2} ions presence of 1 M $NaHCO_3$, to know the time required to reach the stage of equilibrium. All experiments were carried out at pH 3. The examination of the results presented in Table-2.

Time (h)	% Attainment of equilibrium state ^b			
	UO_2^{+2}	Cu^{+2}	Fe^{+3}	Ni^{+2}
½	68	80	70	85
1	75	83	76	86
2	84	86	79	90
3	80	88	94	95
4	90	93	97	96
5	91	94	98	97

a) $[Mt(NO_3)_2] = 0.1 \text{ mole l}^{-1}$, volume 1 ml, $[NaNO_3] = 1 \text{ mol l}^{-1}$, volume 40 ml pH = 3, temp 25°C, wt. of SDVB- ANSA polymer 25 mg.

b) Related to the amount of metal ions taken up at the state of equilibrium assumed to

be established in 24 h and assumed to be 100%.

Distribution ratio of metal ions at different pH values

The results described in Table-3 reveals that the amount of metal ions taken up by the sample SDVB- ANSA at equilibrium increases with the increase in pH. The selectivity of the polymer sample Fe^{+3} ions is higher than that for each of the remaining metal ions. The distribution ratio of Fe^{+3} ion is pH 3. Among the remaining metal ions, Cu^{+2} has a high value of distribution ratio at pH 5 while the other metal ion Ni^{+2} have a low distribution ratio over a pH range from 4 to 6.

Table-3 Distribution ratios, K_d^a

pH	Values for metal ions ^b			
	UO_2^{+2}	Cu^{+2}	Fe^{+3}	Ni^{+2}
1.75	-	-	192	-
2.0	329	-	250	-
2.5	599	-	620	-
3.0	524	27	-	135
4.0	-	35	-	275
5.0	-	488	-	345
6.0	-	-	-	222

The major part of effluents is generated by mineral and metal processing industries. There is a possibility of recycling of water after suitable treatment. These observations have indicated the necessary to derivative more sophisticated method to scavenge the heavy metal ions to a safer limit. The Characteristics of chemical industry situated Gujarat zone and chemical is reported in Table-4. The SDVB- ANSA resin reduced the heavy metal ions concentration from effluents to the level below the discharge limits as shown in Table-5.

Table 4: Characteristics as effluents contaminated with heavy metal ions obtained from unit of mineral and metal processing industry

Characteristics	Industry situated in Gujarat zone	Characteristics	Industry situated in Gujarat zone
Colour	Reddish brown	Zinc	6.8
pH	5.4	Lead	0.59
Total hardness	920	Cadmium	0.16
Iron	0.08	Flouride	0.19
Copper	0.75	Sulphate	645.20

Table 5: Removal of Toxic Metal ion from the Effluents from Various Nonferrous Minerals and Processing Industry

Source effluents	Concentrations of various metal ions (ppm)			
	Metal ions	Unsaturated Effluents	After treatment \with at 8.0 pH	After treatment with SDVB- ANSA at 8.0 pH
Industry situated in Gujarat Zone Area	Iron	0.08	Nil	Nil
	Copper	0.75	Nil	Nil
	Zinc	6.80	0.59	0.04
	Lead	0.59	0.34	0.02
	Cadmium	0.16	Nil	Nil
	Magnesium	86.01	88.02	86.5
	Calcium	172.03	171.5	174

The research also show that "Mg, Cd and Ca" metal ions have not been removed from effluents. This may be due to incomplete dissociation of salts of bivalent metals Mg, Cd and Ca in these effluents. The absorption of metal ions also depends upon the hydrolytic stability and ion-exchange capacity of resin.

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Microwave Assisted Synthesis of Gly-Conjugated Zinc Oxide Nanoparticles and Its Enhanced Non-Conventional Thermotropic Liquid Crystalline Property

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- Abstract
- References
- Citations
- Supplementary Data
- Suggestions

Driven by the need to encouraging luminescent properties using biofriendly approach, we exclusively report, the first attempt on a novel rod shaped new smectic ZnO/Glycine (Gly) bionanoconjugate using ecofriendly approach which displaying luminescent properties via 4-DIACN short azomaterial bearing amine functionalities with dielectric properties, which play a crucial role in shape control of ZnO/Gly bionanoconjugate and convey unusual optical properties. Specifically, in our study, for the first time, we used Dynamic light scattering (DLS) is a powerful method for the determination of small changes in particle sizes. The ZnO/Gly bionanoconjugate were synthesized by microwave assisted method. The assembly was characterized by (Transmission electron micrograph) TEM, (Dynamic light scattering) DLS, UV-Vis, FT-IR, and ^1H NMR spectrometry and liquid crystalline properties has been characterized by POM (polarizing optical microscope), DSC (differential scanning calorimeter) and high and room temperature PXRD (powder X-ray diffraction). And also the dielectric measurements have been carried out for the determination of real and imaginary parts of the permittivity of the newly designed scaffolds. Due to the existence of fluxional ligands, the hybridized material presents mesomorphic behaviour even for a high content of inorganic material. These encouraging luminescent properties of hybrid NPs using biological approach which envisaged to gain more importance in the foreseeable future.

Keywords: BIONANOCONJUGATE; DIELECTRIC PROPERTIES; LIQUID CRYSTAL; NANOMATERIAL

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Forensic Nanotechnology in Forensic Genetics



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Abstract

Deoxyribose Nucleic Acid (DNA) is unique to each and every individual and it remains constant throughout the life as it follows the laws of Mendelian inheritance. However DNA analysis is widely accepted techniques for personal identification. DNA extraction and isolation from ancient bone samples, degraded body parts etc. is still quite difficult and challenging task for forensic scientist. But new upcoming technology like nanotechnology will help for analysis of such samples for DNA. Hence, in this review article we are short listed some of the research articles which used the different nanoparticles for DNA extraction. Where different nanoparticles used for the DNA extraction were cited and explained in brief.

Keywords: Nanotechnology; Personal Identification; DNA; Forensic; Nanoparticles; Copper nanoparticles; Gold nanoparticles; Magnetic Nanoparticles

Introduction

Personal Identification Using DNA

Traditionally, personal or forensic identification of human remains is done on the basis of fingerprint, odontology or skeletal evidence, facial characteristics, scars, marks, or other special features. In many cases, the methods available does not prove to be useful as the extent of putrefaction or destruction of the remains or decomposition is very high [1]. In the case of mass disasters, terrorist attacks, traffic accidents, wars, fires, explosions, airplane crashes defragmented body, highly decomposed body or severely burnt and other harrowing events personal identification or forensic identification become very difficult for the investigator from skeletal remains [2-4]. During decomposition human body undergoes a series of changes and the rate of degradation may vary due to factors like climate, bacterial growth, and insect and animal scavengers [1]. At this time soft tissues do often get destroyed and dental histories may be absent [2]. In such conditions Deoxyribo Nucleic Acid (DNA) can prove to be the most useful source of identification or a good alternative for identification purposes [2]. Deoxyribose Nucleic Acid (DNA) is responsible for the genetic inheritance and hence the discovery of double helix

structure of DNA in 1953 triggered the major impact and headed to remarkable changes in almost all fields of science including forensic investigations. This understanding has been the foundation for development of new techniques and methodologies that permits characterizing each person have individually based on DNA sequence. DNA is composed of phosphate backbone, deoxyribose sugar, and nitrogenous base where the phosphate backbone and deoxyribose sugar remain constant across all individuals, only the nitrogenous bases distinguishes between each individuals. Hence, human DNA consists of 99.9 percent sequences approximately same in each individual only 0.1 percent is found to be different that is unique to each individual, though the possibility of having same DNA is about approximately 10-15 between two unrelated individual [5,6]. These minute differences in human DNA sequences can be detected and in 1984 first forensic DNA testing was done on the basis of these differentiations between DNA sequences [7].

In recent years it is largely widespread that, DNA could lead to personal identification of human remains, namely skeletal remains in the majority of the cases. DNA sample identification and profiling play very crucial role in mass disaster and also to identify suspect



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Studies on Transition Metal Chelates of Azo Ligand Containing Bon Acid

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ABSTRACT:

New azo ligand i.e. 3-hydroxy-4-((5-(furan-2-yl)-1,3,4-oxadiazol-2-yl)-2-naphthoic acid (DAFOBA) was prepared by coupling reaction between the diazonium salt of 2-amino-5-(furan-2-yl)-1,3,4-oxadiazol (AFO) and bon acid (BA). The structure of azo ligand was characterized on the basis of elemental analyses, NMR, FT-IR and UV-Vis spectroscopic techniques. Transition metal chelates of prepared azo ligand have been synthesized and characterized. The structure of metal chelates has been confirmed by using elemental Analysis along with metal content determination, FT-IR, reflectance spectra as well as magnetic susceptibility measurements. Analytical data revealed that all the complexes exhibited 1:2 metal-ligand ratios. Also the biological evaluation of all the synthesized compounds was carried out.

KEY WORDS: 2-amino-5-(furan-2-yl)-1,3,4-oxadiazol, Bon acid, Dyeing study, spectral study, Biological activities.

INTRODUCTION:

Numerous azo dyes are synthesized and established in different dyeing as well as other industries. Azo dyes are have been widely studied recently for the reason that of their ease of availability, affordable price and some useful applications^[1,2]. The wider applications of azo dyes results with several types of the heterocyclic compounds^[3-5]. More particularly their versatile application in various field, such as dyeing textile fiber, food, biomedical studies, in organic synthesis as well as in high technology areas such as laser, liquid crystalline displays, electro-optical devise and ink-jet printers, optical recording medium^[2, 6-8]. Recently azo metal chelates have been given growing interest due to their useful biological properties and enzymatic decolourization field^[9,10].

In previous studies, the one of the authors reported synthesis and characterization of various metal chelates containing azo dye compounds and their biological properties^[11,12]. In the present investigation the synthesis of azo dyes synthesized by coupling of oxidazole

derivative containing furan ring and bon acid. The transition metal chelates of new azo ligand were prepared and confirmed using different spectral studies. Also the biological evaluation was discussed for all synthesized compounds.

MATERIALS AND METHODS

The elemental contents were determined by Thermo Finigen Flash1101 EA (Italy) the metals were determined volumetrically by Vogel's method^[13]. To a 100 mg chelate sample, each 1 ml of HCl, H₂SO₄ and HClO₄ were added and then 1 g of NaClO₄ was added. The mixture was evaporated to dryness and the resulting salt was dissolved in double distilled water and diluted to the mark. From this solution the metal content was determined by titration with standard EDTA solution. Infrared spectra of the synthesized compounds were recorded on Nicolet 760 FT-IR spectrometer. NMR spectrum of DAFOBA was recorded on 60 MHz NMR spectrophotometer. Magnetic susceptibility measurement of the synthesized complexes was carried out on Gouy



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डॉ. बी. एम. पटेल

जब कभी किसी परिवार में किसी बच्चे का जन्म होता है, तब खुशी का समय होता है, तब हम देखते हैं कि एक लैंगिक दृष्टि से विवादित समाज के लोग जो प्रायः हिजड़े होते हैं, (वर्तमान में प्रचलित किन्नर नाम हालाँकि किन्नर शब्द हिमाचल प्रदेश के किन्नौर निवासियों के लिए प्रयुक्त होता है) वे आ जाते हैं, और बधाईयाँ गाकर, आशीर्वाद देकर कुछ रुपये लेकर विदा हो जाते हैं। इसके बाद हम भी अपने सामान्य कार्य में व्यस्त हो जाते हैं और दोबारा कभी इनके बारे में नहीं सोचते। हम कभी यह भी जानने का प्रयास नहीं करते कि ये किन्नर कौन हैं, कहाँ से आये हैं, इनकी समस्याएँ क्या हैं और वे कौन से कारण हैं, जिनकी वजह से इन्हें किन्नर बनकर भिक्षा मांगकर अपना जीवन जीने को मजबूर होना पड़ता है। इनके दर्द के मूल कारण को जानना जरूरी है।

किन्नर के पर्याय नाम—विश्व के सभी समाजों में ईश्वर द्वारा बनायी गई सृष्टि के आधार स्तम्भ स्त्री और पुरुष के अतिरिक्त किन्नरों का भी एक वर्ग है— जिसे थर्ड जेंडर, हिजड़ा, तृतीयलिंगी, उभयलिंगी, यूनक, खौजवा, छक्का, पावैया, शिखण्डी, ख्वाजासरा, जनखा आदि नामों से सम्बोधित किया जाता है।

किन्नर जाति में वर्ग—किन्नर अर्थात् हिजड़ों से अभिप्राय उन लोगों से है, जिनके जननांग अविकसित हों अथवा पुरुष होकर भी स्त्री जैसे स्वभाव के लोग हैं, वे पुरुषों की जगह स्त्रियों के बीच रहने में सहजता महसूस करते हैं। किन्नर अर्थात् हिजड़ों को चार वर्गों में विभाजित किया जाता है। बुचरा, नीलिमा, मनसा और हंसा। इनमें से असली हिजड़े तो बुचरा ही हैं। क्योंकि ये जन्मजात न पुरुष न स्त्री होते हैं। इनमें से नीलिमा नामक वर्ग के हिजड़े किसी कारणवश स्वयं को हिजड़ा बनने के लिए समर्पित कर देते हैं। मनसा नामक वर्ग के हिजड़े तन के स्थान पर मानसिक तौर पर स्वयं को विपरीत लिंग अथवा अक्सर स्त्रीलिंग के अधिक निकट महसूस करते हैं। और हंसा नामक वर्ग के हिजड़े शारीरिक कभी तथा नपुंसकता आदि के कारण से हिजड़े बने हैं। नकली हिजड़ों को 'अबुआ' नाम से पहचाना जाता है। जो वास्तव में पुरुष होते हैं। किन्तु धन के लोभ में हिजड़े का स्वांग रचते हैं। जबरन बनाये गये हिजड़ों को 'छिबरा' कहा जाता है। परिवार से रंजिश के कारण इनका लिंगोच्छेदन कर इन्हें

हिजड़ा बनाया जाता है।

किन्नरों की जनसंख्या —भारत की सन् 2011 जनगणना के अनुसार पूरे भारत में 4 लाख 90 हजार किन्नर हैं। जिसमें से 1 लाख 37 हजार उत्तरप्रदेश में हैं। इसी जनगणना के आधार पर सामान्य जनसंख्या में शिक्षित लोगों की संख्या 74 है। जबकि यही संख्या किन्नरों में महज 46 ही है। इनमें आधे से अधिक नकली स्वांग करने वाले हिजड़े हैं। आश्चर्य की बात यह है कि शेष 2 लाख असली हिजड़ों में से सिर्फ 400 जन्मजात हिजड़े या बुचरा हैं। शेष हिजड़े स्त्री स्वभाव के कारण हिजड़ों में शामिल हो जाते हैं वे मनसा या हंसा वर्ग के हिजड़े हैं। और इससे भी बड़े आश्चर्य की बात यह है कि इन 2 लाख हिजड़ों में से 70 हजार हिजड़े ऐसे हैं जिन्हें एक छोटे से ओपरेशन के बाद लिंग परिवर्तन करने के पश्चात पुरुष या स्त्री बनाया जा सकता है। लेकिन इस तरफ किसी का ध्यान नहीं जाता यह हमारे समाज या देश के लिए बहुत बड़ी दुःख की बात है।

किन्नर समुदाय को सामाजिक संरचना के आधार पर सात समाज अर्थात् घरानों में विभाजित किया जा सकता है। इसके मुखिया को नायक कहा जाता है। वह नायक स्वयं अपने डेरे या आश्रम के लिए गुरु की पसंदगी करता है। हिजड़े जिनसे शादी करते हैं या जिन्हें अपना पति मानते हैं, उन्हें गिरिया कहते हैं। उनके नाम का करवाचौथ भी रखते हैं।

जब किसी परिवार में बुचरा अर्थात् जन्मजात हिजड़े का जन्म होता है, तब परिवार के सदस्य जल्द ही उसे अपने परिवार से दूर करने का प्रयास करते हैं क्योंकि परिवार का जिनमें विशेषकर मर्द अथवा जन्म लिए हिजड़े का पिता यह सोचता है पता चलने पर लोग उसके पुरुषत्व पर शंका करेंगे तथा हिजड़े जानने पर परिवार की प्रतिष्ठा धूल में मिला देगा। इसलिए वे जल्द से जल्द उस बालक को "ठिकाने लगाने" का प्रयास करता है अथवा उसे हिजड़ों के बीच छोड़ देते हैं। लेकिन ऐसा करने से पहले इस बच्चे के पिता अक्सर यह नहीं सोचते कि अपनी ही संतान को अपने से दूर करने से पहले एक बार डॉक्टर की सलाह तो ले लें कि इस बालक को पुरुष अथवा महिला के लिंग में बदला जा सकता है या नहीं।

इच्छा के अनुसार बनने वाले किन्नर—नीलिमा कोटि के हिजड़े किसी कारणवश स्वयं हिजड़े बन जाते हैं। मनसा वर्ग के हिजड़े मानसिक तौर पर अपने आपको हिजड़े के निकट समझते हैं। सामान्य मनोवैज्ञानिक काउंसलिंग के जरिए वापस उसे वास्तविक लिंग में भेजा जा सकता है।

हंसा कोटि के किन्नर कोई यौन सक्षमता न होने के कारण अपनी नियति को हिजड़ों के साथ जोड़ लेते हैं। इनका इलाज करने के बाद इनमें से ज्यादा को सामान्य पुरुष या स्त्री बनाया जा सकता है और वे सामान्य जीवन जी सकते हैं।

धन के लोभ से बने किन्नर—अबुआ कोटि के किन्नर वास्तव में धन के लोभ में फंसकर किन्नर बनकर किन्नरों को न्यौछावर के रूप में मिलने वाली धनराशि को लूटने का काम करते हैं। ज्यादातर इसमें पुरुष होते हैं और जरूरत पड़ने पर साड़ी

पहनकर किन्नर बनने का प्रयत्न करके हिजड़ों को मिलते अधिकारों पर कुठाराघात करते हैं। ये रात को सड़क पर घूमकर ट्रक ड्राइवरों के साथ अप्राकृतिक संबंध बांधकर उनकी यौन प्यास शांत करते हैं। असली किन्नर स्वभावतः स्त्री होते हैं और वे पुरुषों के प्रति आकर्षित होते हैं। नकली किन्नर वास्तव में पुरुष होते हैं, उनका स्त्रियों की तरफ आकर्षण होता है।

अत्यंत करुण दशा के किन्नर—पारिवारिक रंजिश के कारण कुछ लोग शत्रु के परिवार के लड़के-लड़कियों को या स्कूलों के बच्चों को उठाकर ले जाते हैं, और उनके लिंग हटवाकर उन्हें किन्नर बना देते हैं, उन्हें छिबरा वर्ग के किन्नर कहा जाता है। छिबरा वर्ग के किन्नर अत्यन्त दुर्भाग्यपूर्ण और भयावह यंत्रणा से गुजरते हैं। लिंग हटवाने जैसा जघन्य कृत्य करनेवाले पिशाच एक व्यक्ति के जीवन को नरक बना देते हैं और पीड़ित बच्चे को बिना किसी दोष के आजन्म इस यंत्रणा से गुजरना पड़ता है। इनमें से कुछ को वापस उनके लिंग में लाया जा सकता है, लेकिन यह बड़ी ही जटिल और खर्च की प्रक्रिया है।

किन्नर का उद्भव—किन्नरों के उद्भव के बारे में उनसे संबंधित प्राचीन समय की अंतर्कथाएँ हैं, इनमें भगवान राम के वनगमन से सम्बन्धित है। कहा जाता है कि जब अयोध्या में राम अपने पिता दशरथ की आज्ञा का पालन करते हुए अपनी पत्नी सीता तथा अपने भाई लक्ष्मण के साथ चित्रकूट आये तो उन्हें मनाकर वापस अयोध्या लाने के हेतु भरत अयोध्यावासियों के साथ चित्रकूट आये थे लेकिन प्रभु राम ने भरत तथा अयोध्यावासियों की अनुनय विनंती अस्वीकार करते हुए सभी नर-नारियों को वापस जाने को कहा परन्तु उन्होंने हिजड़ों के लिए कुछ नहीं कहा, जबकि वे भी उन्हें मनाने हेतु वहाँ उपस्थित हुए थे। कहा जाता है कि इन हिजड़ों के लिए प्रभु का कोई स्पष्ट आदेश न होने के कारण उन हिजड़ों ने 14 वर्षों तक वहीं रुककर प्रभु राम के वापस आने की प्रतीक्षा करने का निर्णय लिया था। जब वनवास पूर्ण कर भगवान राम वापस अयोध्या जा रहे थे तो उन्होंने इन हिजड़ों को चित्रकूट मार्ग में अपनी प्रतीक्षा करते पाया। प्रभु राम ने उन्हें रुकने का कारण पूछा तो इन निर्मल हिजड़ों ने बताया कि जब हम भरत के साथ यहाँ आपको मनाने के लिए आये थे तो आपने कहा था—

“जथा जोगु करि विनय प्रनामा, बिदा किए सब सानुज रामा।

नारि पुरुष लघु मध्य बड़ेरे, सब सनमानि कृपानिधि फेरे।।”

भगवान राम हिजड़ों की इस निश्छल और निःस्वार्थ भावना से अत्यन्त प्रभावित हुए और प्रसन्न होकर स्त्रियों को वरदान दिया कि कलयुग में तुम जिन्हें अपना आशीर्वाद दोगे, उसका कभी अनिष्ट नहीं होगा, इसीलिए शुभ अवसरों पर गृहस्थ इनका स्वागत करते हैं और इन्हें मुंहमांगी रकम देकर विदा करते हैं।

प्राचीन काल में हिजड़ों का अस्तित्व प्रमाणित होता है। महाभारत में शिखन्डी का उल्लेख आता है। जिसके कारण भीष्म का वध हुआ था। अर्जुन ने बृहन्नला नामक हिजड़े का भेष धरकर विराटनगर में अज्ञातवास का अंतिम वर्ष पूर्ण किया था। गुजरात के किन्नर अर्जुन के बृहन्नला रूप की पूजा करते हैं। यह भी माना जाता है कि यहाँ के

बहुचर देवी के मन्दिर में किन्नर बनने के इच्छुक लोग आते हैं। बहुचर देवी किन्नरों की इष्ट हैं। जिनका वाहन मुर्गी है। किन्नर लोग खप्परधारी देवी तथा शिव के अर्धनारीश्वर रूप की भी पूजा करते हैं।

किन्नरों का उत्सव : नववर्ष की पहली पूर्णिमा— तमिलनाडु के किन्नर अरावन की पूजा करते हैं। स्वयं को तिरनन्गाई कहलाना पसंद करते हैं। हिन्दी में उसका अर्थ है— ईश्वर की पुत्रियाँ। वैसे तो तमिलनाडु के कई जगहों पर भगवान अरावन के मंदिर बने हैं। इसका सबसे प्राचीन और मुख्य मंदिर विल्लुपुरम जिले के कूवगम गाँव में है, जो कूतान्दवर मन्दिर के नाम से जाना जाता है। इस मंदिर में भगवान अरावन के शीश की पूजा की जाती है। इस गाँव में हर वर्ष तमिल नववर्ष की पहली पूर्णिमा को 18 दिनों तक उत्सव चलता है। इस उत्सव में संपूर्ण भारत के तथा आस पास के देशों के किन्नर एकत्र होते हैं। पहले 16 दिनों तक मधुर गीतों पर सब नाच गाना होता है। बीच-बीच में ताली बजाकर हंसी खुशी से अरावन के विवाह की तैयारी करते हैं। 17 वें दिन पुरोहित द्वारा विशेष पूजा होती है। अरावन देवता को नारियल चढ़ाया जाता है। उसके बाद अरावन के सामने मंदिर के प्राभारी द्वारा किन्नरों के गले में मंगलसूत्र पहनाया जाता है, जिसे थाली कहा जाता है। बाद में राव में किन्नर अरावन की मूर्ति से शादी रचाते हैं। 18 वें दिन सारे कवगम गांव में अरावन की प्रतिमा को घुमाया जाता है, फिर उसे तोड़ देते हैं। उसके बाद दुल्हन बने किन्नर अपना मंगलसूत्र तोड़ देते हैं। बाद में अपने चेहरे पर किए सारे श्रृंगार को मिटा देते हैं। सफेद वस्त्र पहनकर विधवाओं की भांति जोर-जोर से छाती पीटकर रोते हैं। जिसे देखकर वहाँ मौजूद लोगों की आंखें भी नम हो जाती हैं। उसके बाद अरावन उत्सव खत्म हो जाता है। बंगाल की सखीबेकी समुदाय के किन्नर भगवान श्रीकृष्ण की पूजा करते हैं, गुजरात तथा कर्णाटक के जोगप्पा समुदाय के किन्नर बहुचर देवी की पूजा करते हैं।

किन्नरों की आधुनिक समय में स्थिति— आधुनिक समय में किन्नर समाज आर्थिक, सामाजिक स्थिति के कारण भीख मांगने तथा वेश्यावृत्ति करने के लिए अभिशप्त है। जिस्मफरोशी में जाने से पीड़ितों की संख्या बढ़ रही है। कोई भी व्यक्ति या समाज किन्नरों के दर्द को सुनना या समझना या महसूस करना नहीं चाहता।

कंगन है मेरे हाथ में, पर कलाई में ताकत है पुरुषों से अधिक,
आवाज है मेरी पुरुषों सी, पर मन मेरा कोमल है पुरुषों से अधिक,
पर पूछता अस्तित्व मेरा, तू कौन है ?

समाज यह नहीं जानता कि किन्नरों की शारीरिक संरचना, इस समय के नियम तथा इनकी आजीविका के साधन तथा इनकी बिरादरी का ताना बाना क्या है, इनके जीवन का दर्द तो इनकी मृत्यु के बाद होने वाली रस्मों से छलकता है। इनका अन्तिम संस्कार आधी रात को होता है, उससे पहले शव को चप्पलों से पीट-पीट कर दुआ मांगी जाती है कि ऐसा जन्म फिर न मिले।

हमारे देश में बाल रोग, स्त्री रोग, नाक, कान, गला आदि रोग के विशेषज्ञ हैं,

पर किन्नर को स्वास्थ्यगत समस्या होने पर कोई डॉक्टर उसे छूता नहीं है। राजनीति के धरातल पर भी इनका प्रतिशत नगण्य है।

किन्नरों को मिले अधिकार— विश्व में किन्नर समुदाय को ट्रान्सजेन्डर के रूप में मान्यता मिली है। किन्नर समुदाय की प्राचीनतम उपस्थिति दक्षिण अफ्रीका, वर्तमान में अमेरिका, ब्रिटेन, ओस्ट्रेलिया, यूरोप आदि देशों में मिलती है। 2006 में इंडोनेशिया में विश्व सम्मेलन के अन्तर्गत लिंगीय पहचान को मान्यता देते हुए सिद्धांतों को स्वीकारा है। ओस्ट्रेलिया कत लिंग विभेद अधिनियम 1984, के संशोधन अधिनियम 2013, युरोपियन यूनियन कानून 2006, 27 देशों में लागू हेट क्राइम प्रिवेंशन एक्ट 2009 अमेरिका आदि हैं। 15 अप्रैल 2011 को भारत के सर्वोच्च न्यायालय के न्यायमूर्ति के. एस. राधाकृष्णन और ए. के. सीकरी ने तीसरे जैण्डर को मान्यता देते हुए बड़ा ऐतिहासिक फैसला दिया है।

राजनीतिक दृष्टि से किन्नर समुदाय में सशक्तिकरण का तंत्र विकसित करने की अनिवार्यता है। समाज की दृष्टि से सामाजिकों को जिम्मेदारी के प्रति सचेत किया जा रहा है ताकि वे अपने दायरे से बाहर निकलकर समाज के अधिकारों के संरक्षण के लिए प्रयास करें।

1. पासपोर्ट, राशन कार्ड, वोटर कार्ड, पैन कार्ड, बैंक खाता, क्रेडिट कार्ड, विल लिखने का अधिकार।
2. कानूनी तौर पर स्त्री प्रभाग में यात्रा करने का अधिकार।
3. विवाह का अधिकार, तथा बच्चा गोद लेने का अधिकार।
4. तलाक लेने का अधिकार।
5. 60 वर्ष से उपर किन्नरों के लिए पेंशन की सुविधा।
6. घर बनाने की सुविधा।
7. व्यापार करने हेतु बैंक लोन की सुविधा। न्यायिक सुविधा में अनुदान।
8. स्कूल में भर्ती में फीस में कटौती तथा छात्रवृत्ति की सुविधा।
9. न्यायिक सुविधा में अनुदान।
10. अपना लिंग बदलवाने संबंधी मैडिकल सुविधा मुफ्त।

हिन्दी साहित्य में किन्नर विमर्श अभी अपरिपक्व अवस्था में है। समाज उन्हें स्वीकारने में संकोच करता है। किन्नरों के अन्दर धड़कने वाले दिल में क्या हलचल होती है यह जानने का प्रयत्न किसी ने नहीं किया। उपन्यासकार नीरजा माधव ने अपने उपन्यास के द्वारा किन्नरों के जीवित यथार्थ की पर्तों को खोला है। जिसमें मुख्यधारा है— किन्नर समुदाय का बुनियादी हक देने में कटौती न हो। समाज को किन्नरों को मिलने वाले अधिकारों के पक्ष में खड़ा रहना होगा। किन्नरों के प्रति समान वातावरण प्रदान करना समाज की जिम्मेदारी है, अगर ऐसा होगा तो किन्नर समाज का आर्थिक, राजनीतिक तथा सामाजिक दृष्टि से उत्थान संभव है।

प्राध्यापक, हिन्दी विभाग, भवन्स कॉलेज,
डाकोर, गुजरात

**U.G.C. Sponsored One Day National Level Seminar
ON**

**HISTORY OF ECONOMIC THOUGHTS,
ECONOMIC DEVELOPMENT AND
THE STUDY OF THE SYSTEMS-II**

**EDITOR
PROF. B. S. RATHOD**



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ડૉ. કાશીરામ સી. રાઠવા
ભવન્સ આર્ટ્સ, સાયન્સ & કોમર્સ કોલેજ, ડાકોર

ગાંધીજીનો પ્રાથમિક પરિચય :

ગાંધીજી ભારત દેશના ગુજરાત રાજ્યના પોરબંધર શહેરમાં 1869ની બીજી ઓક્ટોબરે જન્મ્યા હતા. તેમના પરિવારના વડીલો બે પેઢીથી કઠિયાવાડનાં રાજ્યોનું દીવાનપદું સંભાળતા હતા. ગાંધીજીએ તેમનું ઉચ્ચ શિક્ષણ ઇંગ્લેન્ડમાં વકીલાતનાં વ્યવસાય માટેનું લીધું હતું. તે બેરિસ્ટર બન્યા હતા. તેમના માતા-પિતા તરફથી સત્યપ્રિયતા, સ્વમાન-જાળવણી અને ધાર્મિકતા સંસ્કારો તેમને મળ્યા હતા.

આમ ગાંધીજીને અર્થશાત્રનાં જ્ઞાનનો વારસો મળ્યો નથી. ભારતની આર્થિક પરિસ્થિતિનો અને વિશ્વના રાષ્ટ્રોનાં આર્થિક વલણોનો જાતે અભ્યાસ કરીને ભારતની પ્રજાની આર્થિક સમસ્યાઓ નિવારવા તેમણે સક્રિય પ્રયત્નો શરૂ કર્યા હતા. ભારતની સંસ્કૃતિ અને ભારતનાં સમૃદ્ધ ભૂતકાળનો આધાર લઈ આર્થિક ધ્યેયો સમજાવ્યાં હતાં.

ગાંધીજીના આર્થિક વિચારોના પ્રેરકો અને સ્ત્રોતો :

ગાંધીજીને કયાં પરિબળોએ આર્થિક વિચારો કરવા અને આર્થિક સુધારાઓ સર્જવા પ્રેર્યા તે મહત્વની બાબત છે. ગાંધીજીનો જીવન પ્રત્યેનો અભિગમ, ધાર્મિક સાહિત્યનો ઉપયોગલક્ષી અભ્યાસ, રાજકીય અને તત્ત્વજ્ઞાનનાં વિચારકોનું વલણ અને અર્થશાત્રનો સ્વ-અભ્યાસ વગેરે પરિબળોએ ગાંધીજીને આર્થિક સમસ્યાઓ, તેના ઉપાયો અને અર્થશાત્રનાં વિજ્ઞાન અંગેના એક મૂલિક અભિગમ તરફ જવા પ્રેર્યા છે.

જીવન પ્રત્યેનો રચનાત્મક અભિગમ :

ગાંધીજી કુમારવસ્થાથી જીવનને સર્વાંગી વિકાસના સાધન તરીકે સ્વીકારે છે. જીવન બીજાને ઉપયોગી બનવા માટે છે, સદ્ગુણોનાં વિકાસ દ્વારા આત્માનો વિકાસ કરવા માટે છે. જીવન વિશેનો આ પ્રમાણેનો રચનાત્મક અભિગમ તેઓ ધરાવે છે.

ભારતનાં સંદર્ભમાં ગાંધીજી જણાવે છે કે,

“ ભારતમાં જન્મ આપીને ઈશ્વરે મારું ભાગ્ય ભારતનાં લોકો સાથે જોડ્યું છે, એટલે જો હું એમની સેવા કરવામાં નિષ્ફળ જાઉં તો હું ઈશ્વરને બેવફા નિવડ્યો ગણાઉં ”આવી

વિચારધારા ગાંધીજીને ભારતની પ્રજાની આર્થિક સ્થિતિ સુધારવા પ્રેરે છે અને તેથી તેમણે આર્થિક વિચારો અને આર્થિક સુધારોઓ વિશે ચિંતન કર્યું.

• ધાર્મિક અભ્યાસની અસર :

ગાંધીજીના સમગ્ર જીવન ઉપર ધર્મભાવનાની પ્રભાવક અસર રહી છે. જે ધર્મ ગ્રંથોએ ગાંધીજીના આર્થિક વિચારોને પ્રભાવિત કર્યા છે તે નીચે મુજબ જોવા મળે છે.

1.1 ભગવદ્ગીતા :

ગાંધીજી 1889માં માત્ર વીસ વર્ષની ઉંમરે ભગવદ્ગીતાનું વાચન કર્યું હતું. ત્યાર બાદ તેઓ જીવનભર નિયમિત દૈનિક પ્રાથનામાં ગીતાવાંચનને સ્થાન આપ્યું.

તેઓ જણાવે છે કે

“ રોટીને સારું પ્રત્યેક મનુષ્યે મજૂરી કરવી જોઈએ એ ઇશ્વરી નિયમ છે આની ઝાંખી ત્રીજા અધ્યાયમાં કરે છે. યજ્ઞ વિના જે ખાત છે તે ચોરીનું અન્ન ખાત છે એવો કઠિન શાપ છે.”

1.2 ઉપનિષદ :

ગાંધીજીની દૈનિક પ્રાથનાનો પ્રથમ શ્લોક ઉપનિષદનો છે.

ईशावास्यम् इदम सर्वम् यत् किञ्चित् जगत्या जगत्

तेन त्यक्तेन भूजीथाः मा गृधः कस्यस्वित्त धनम् ।

ગાંધીજી જણાવે છે કે " ઉપનિષદ ના પ્રથમ શ્લોક માં જ સમગ્ર હિંદુ ધર્મને સમજાવી શકાય છે " તેમણે વાલીપણાનાં સિદ્ધાંતમાં જણાવ્યું છે કે સર્વ સંપત્તિ ઈશ્વરની છે, માણસની નહીં તેવી ભાવના, આર્થિક સમાનતા અને મર્યાદિત માંગ અપેક્ષા ઉપનિષદના અભ્યાસ દ્વારા પ્રેરણારૂપ બન્યો છે.

1.3 ઋગ્વેદ :

ગાંધીજી આર્થિક પ્રવૃત્તિ તરીકે રેટીઓ અને કાંતણને મહત્વ આપ્યું છે. 1922માં 'વેદમે ચરણા' નામક પુસ્તકના અભ્યાસના આધારે જણાવ્યું છે કે વૈદિક કાળમાં કાંતણ અને વણાટનું મહત્વ વિશેષ હતું.

રાજકીય નેતાઓ અને તત્ત્વજ્ઞાનીઓ:

ગાંધીજીના જીવન ઉપર રાજકીય નેતાઓ અને તત્ત્વજ્ઞાનીઓની પણ અસર જોવા મળે છે

1. ગોપાલકૃષ્ણ ગોખલે :

શ્રી ગોપાલકૃષ્ણ ગોખલે ગાંધીજી પોતાના ગુરુ માનતા હતા. શ્રી ગોખલેના આદેશ અનુસાર ગાંધીજી પ્રથમ સમગ્ર ભારતનો પ્રવાસ કરીને ભારત અને ભારતીય પ્રજાને જાણવી. તે પછી જ સક્રિય જીવન શરૂ કરવું. ગુરુના આદેશ અનુસાર ગાંધીજી 1915માં સમગ્ર ભારતનો પ્રવાસ કર્યો હતો.

2. રાજચંદ્રજી (શ્રીમદ્ રાજચંદ્ર) :

ગાંધીજીના અહિંસા વિશેના વિચારો દ્રઢ કરવામાં શ્રીમદ્ રાજચંદ્રની અસર પ્રભાવશાળી છે. શ્રીમદ્ રાજચંદ્રની ધર્મચર્યાઓએ ગાંધીજીમાં રહેલી અપરિગ્રહની ભાવનાને સુદઢ બનાવી.

3. જ્હોન રસ્કિન :

ગાંધીજી દક્ષિણ આફ્રિકામાં એક રેલ્વે મુસાફરી દરમિયાન 1904 ની સાલમાં જ્હોન રસ્કિનનું પુસ્તક 'Unto This Last' વાચ્યું હતું. એ પુસ્તકની અસરકારકતા અંગે તેઓ 1946માં જણાવ્યું હતું કે, "માનવજાતે વિકાસ કરવો હોય તો માનવજાતે 'Unto This Last' નાં સિદ્ધાંતો મુજબ વર્તવું પડશે."

4. ટોલ્સ્ટોય:

1894 માં ગાંધીજીએ ટોલ્સ્ટોયનું પુસ્તક વૈકુંઠ તારા હૃદયમાં છે, વાચ્યું. ગાંધીજીના આર્થિકવિચારો અને આર્થિક વ્યવહારનાં ઘડતરમાં ટોલ્સ્ટોયનું મહત્વનું પ્રદાન છે. ગાંધીજીએ તેમના આશ્રમનું નામ ' ટોલ્સ્ટોય ફાર્મ ' રાખ્યું હતું.

5. હેન્રી ડેવિડ થોરો :

અમેરિકાનાં વિચારક થોરોનાં વિચારની અસર ગાંધીજીનાં આર્થિક વિચારો ઉપર જોવા મળે છે. 'સ્વૈચ્છિક ગરીબી 'અને ' જરૂરિયાતોની મર્યાદા' ના વિચારો થોરોના સાહિત્ય દ્વારા વધુ દ્રઢ બન્યા.

ગાંધીજીના આર્થિક વિચારોમાં અર્થશાત્રના પુસ્તકનું યોગદાન :

ગાંધીજીએ અર્થશાત્રનાં કેટલાક મહત્વના પુસ્તકોનો અભ્યાસ કર્યો છે.

1. કૌટિલ્યનું અર્થશાત્ર પુસ્તકનાં વાંચન દ્વારા ગાંધીજી જણાવે છે કે, " મેં જે રેંટીઓ આપ્યો છે તે અહિંસાનાં પ્રતિક તરીકે આપ્યો છે. "

2. ભારતની ભૂતકાળની આર્થિક પરિસ્થિતિને જાણવા માટે ગાંધીજીએ શ્રી રોમેશચંદ્ર દત્તનાં આર્થિક ઇતિહાસનાં પુસ્તકનો અભ્યાસ કર્યો છે.

3. અર્થશાત્રનાં પિતા ગણાતા શ્રી એડમ સ્મિથનાં પુસ્તકનો અભ્યાસ ગાંધીજીએ કર્યો છે.

4. 1928 થી 1948 દરમિયાન રશિયામાં સામ્યવાદનો પ્રચાર થઈ રહ્યો હતો. આ સમય દરમિયાન સામ્યવાદના વિચારોને સમજવા ગાંધીજીએ કાર્લ માર્ક્સનું ' કેપિટલ' પુસ્તક વાચ્યું.

5. વિશ્વનાં અર્થતંત્રનાં પ્રવાહોને જાણવા રશિયા, રોમ, ઈટાલી, ઓસ્ટ્રેલીયા, ગ્રીસ, અમેરિકા, જાપાન, ઈંગ્લેન્ડ વગેરે દેશોની આર્થિક નીતિની માહિતી તેમણે મેળવી હતી.

ઉપસંહાર:

ગાંધીજીના આર્થિક વિચારો નિશ્ચિત પુસ્તકોમાંથી અથવા નિશ્ચિત સામયિકોમાંથી મેળવી લેવાય તેવું શક્ય નથી. તેમણે સમગ્ર જીવનનાં એક ભાગ તરીકે આર્થિક પ્રશ્નોને મહત્વ આપ્યું છે. આ સંદર્ભમાં જ્યારે આર્થિક

સમસ્યાઓ અનુભવી અથવા જોઈ અથવા તે અંગે વિવાદ ઊભો થયો ત્યારે તેમણે પોતાના વિચારો રજૂ કર્યા છે.

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સુકન્યા સમૃદ્ધિ યોજના

ડૉ. કાશીરામ સી. રાઠવા

પ્રસ્તાવના :

દિકરી સાંપનો ભારો નહીં પરંતુ વ્હાલનો દરિયો હોય છે. આને ખરા અર્થમાં સાર્થક ઠેરવવા કેન્દ્ર સરકાર કમર કસી છે. અને વડાપ્રધાન નરેન્દ્ર મોદીએ બેટી બચાવો, બેટી પઢાવ અભિયાનને સમર્થન આપવા માટે સુકન્યા સમૃદ્ધિ યોજના અમલમાં મુકી છે. જે દીકરીઓ માટે ભેટ સમાન સાબિત થશે. આ યોજનામાં માતા પિતા ઉપર કન્યાના લગ્ન અને તેના ભણતરનો ભાર હળવો કરવામાં સરકારની સુકન્યા સમૃદ્ધિ યોજનામાં સુરતમાં ૭૫ જેટલા પરિવારોએ ખાતા ખોલાવ્યા છે. અને અન્ય દીકરીવાળા પરિવારોને આ યોજનાનો લાભો વિષે માહિતગાર કરી રહ્યાં છે.

સુકન્યા સમૃદ્ધિ યોજનાને લોકો ઠેર ઠેર આવકાર આપી રહ્યા છે. 22 જાન્યુઆરી 2015થી ભારતભરની પોસ્ટ ઓફિસમાં શરૂ થયેલી આ યોજના કન્યાના ભવિષ્યને ઉજ્જવળ બનાવવા ખુબ ઉપયોગી સાબિત થાય તેમ છે. દેશની દરેક પોસ્ટ ઓફિસોમાં આ યોજના હેઠળ ખાતું ખોલાવવા અને યોજનાની જાણકારી મેળવવા લોકોમાં ઉત્સાહ જોવા મળી રહ્યો છે.

વિશિષ્ટતાઓ :

1. એક હજારથી ખુલે ખાતું :

માતા પિતા કે ગાર્ડિયન કન્યા માટે "સુકન્યા સમૃદ્ધિ યોજના" અંતર્ગત પોસ્ટ ઓફિસમાં ખાતું ખોલાવી શકે છે. આ યોજનામાં 2-12-2003ના રોજ અથવા ત્યાર બાદ જન્મેલી કન્યાનું ખાતું ખોલાવી શકાય છે. અને માતા અને પિતા ગાર્ડિયન તરીકે ખાતું ખોલાવી શકે છે. અનાથ કન્યાના કિસ્સામાં કોર્ટ દ્વારા નિમાયેલા ગાર્ડિયન ખાતું ખોલાવી શકે છે. આ યોજના હેઠળ એક કુટુંબ માંથી વધુ માં વધુ બે કન્યાઓનું ખાતું ખોલાવી શકાય છે. અને ઓછામાં ઓછા રૂપિયા એક હજારથી ખાતું ખોલાવ્યા બાદ એક નાણાકીય વર્ષમાં રૂપિયા 100ના ગુણાંકમાં વધુ માં વધુ 1 લાખ 50 હજાર જમા કરાવી શકાય છે.

* ભવન્સ કોલેજ ડાકોર

2. ઉચ્ચ અભ્યાસ માટે ૧૮ વર્ષની દીકરી થાય ત્યારે રકમ ઉપાડી શકાય:
 સુકન્યા સમૃદ્ધિ યોજના વર્ષ 2014-2015 માટે 9.1 ટકા વ્યાજ દર નક્કી કરવામાં આવ્યું છે. જે દરેક વર્ષે કેન્દ્ર સરકારના નિયમ અનુસાર બદલાતા રહેશે. કન્યાઓના ભણતર અને તેમના લગ્ન સરળતાથી થઈ શકે તે માટે આ યોજના અંતર્ગત ખાતું ખોલાવ્યા બાદ 14 વર્ષ સુધી રૂપિયા ભરવા પડે ત્યાર બાદ ખાતું પાકતી મુદતનું થાય આ યોજનાની ખાસિયત એ છે કે કન્યા ની ઉંમર 18 વર્ષ ની થાય તે પછી ઉચ્ચ શિક્ષણ માટે જમા થયેલી રકમમાંથી 50 ટકા રકમ ઉપાડી શકાશે.

3. ઈન્કમેટેક્સમાંથી પણ મળશે બાદ:

સુકન્યા સમૃદ્ધિ યોજના મુજબ દરેક દીકરીનું પોસ્ટ ઓફિસમાં ખાતું ખુલી શકે છે. દીકરીની ઉંમર અગાઉ જો 18 વર્ષ થયા બાદ લગ્ન થઈ જાય તો ખાતું બંધ થઈ જશે. વળી આ સુકન્યા સમૃદ્ધિ યોજના અંતર્ગત ખોલાવવામાં આવેલું ખાતું નોકરીયાત અને ધંધાર્થીઓ માટે પણ ફાયદાકારક છે. કારણ કે, સરકારે આ ખાતામાં જમા કરાવવામાં આવનારી યોજનાને ટેક્સમાંથી મુક્તિ આપી છે. એટલે કે, આ યોજના હેઠળ કરેલ રોકાણ ઈન્કમેટેક્સ કાયદાની કલમ 80(સી) માં બાદ મળશે એ ખુબ સારી બાબત છે. જે મધ્યમ વર્ગના લોકો માટે ખુબ જ ફાયદાકારક બાબત છે.

4. દીકરી લાગશે તુલસીનો ક્યારો:

સુકન્યા સમૃદ્ધિ યોજના હજુ કેન્દ્ર સરકારે લોન્ચ જ કરી છે. આ યોજના દ્વારા દીકરી સાપનો ભારો નહીં પરંતુ તુલસીનો ક્યારો લાગશે તેવું તેમણે વધુમાં જણાવ્યું હતું.

5. વિશેષ સુવિધાઓ:

આ ખાતું કોઈ પણ શહેરમાં કોઈ પણ શાખામાં ટ્રાન્સફર કરી શકાય છે, વિપરીત સંજોગો જેવા કે દીકરીનું મૃત્યુ અથવા કોઈ જીવલેણ સમસ્યામાં ખાતું બંધ કરવાની કે સમય પેહલા પૈસા ઉપડવાની સુવિધા આપે છે. શાખ રૂપે ખાતામાંથી 50 ટકા રકમ ઉપાડી શકાય છે. પરંતુ આ રકમ કન્યાના ઉચ્ચ અભ્યાસ અથવા લગ્ન સાથે સંબંધિત હોવી જોઈએ. જો દીકરીના લગ્ન 18 થી 21 વરસના ગાળામાં કરવામાં આવે ત્યારે આ ખાતું બંધ કરવામાં આવશે.

3. ખાતું ખોલવા માટેના જરૂરી દસ્તાવેજો:

1. ફોર્મ ભરીને તેની પર યોગ્ય હસ્તાક્ષર કરો.
2. પોતાનું આઈ ડી અને એડ્રેસ પ્રૂફની ફોટોકોપી એટેચ કરો.
3. દીકરીનું જન્મ પ્રમાણપત્ર ની કોપી જોડવી.

4. પોતાના અને પોતાની પુત્રીના બે-બે પાસપોર્ટ સાઇઝ ફોટો લગાવો.

મહત્વની બાબતો :

1. 2 ડિસેમ્બર 2003 પેહલા બાળકીનો જન્મ થયો હોય તો બાળકીના નામે એકાઉન્ટ ખોલાવીશકશે નહીં.
2. આ યોજનાથી તમે વર્ષે ઓછામાં ઓછું એક હજાર અને વધુમાં વધુ દોઢ લાખ રૂપિયા સુધીજમાકરાવી શકો.
3. વર્ષ દરમિયાન જ્યારે ઈચ્છો ત્યારે પૈસા જમા કરાવી શકો છો.
4. આ યોજના પીપીએફ કરતાં વધુ વ્યાજ આપી શકે છે.
5. જો વર્ષ દરમિયાન પૈસા જમા કરવાનું ભૂલી જવાય તો પચાસ રૂપિયા દંડ ભરવો પડશે.
6. જો દીકરીના 18 વર્ષે લગ્ન કરાવવા માંગતા હોવ તો પ્રી-મેચ્યોર ફેસિલિટી હેઠળ નાણાં નિકાળીશકશો.
7. જો ઘરમાં બે દીકરી હોય તો બે એકાઉન્ટ ખોલાવી શકો છો, પરંતુ બે કરતાં વધુ છોકરીઓ હોય તો પણ માત્ર બે એકાઉન્ટ ખોલાવી શકો છો.
8. ખાતામાં પૈસા જમા કરવાની સુવિધાઓનલાઇન પણ ઉપલબ્ધ છે.
9. આ યોજના ઉપર કોઈ પણ પ્રકારનું દેવું લઈ શકાઈ નહીં.

સુકન્યા ખાતું ખોલ્યા પછી એક પાસબુક તૈયાર કરવામાં આવે છે, જેમાં બાળકીની જન્મ તારીખ, ખાતું ખોલવાની તારીખ, એકાઉન્ટ નંબર, જમકર્તાનું નામ, એડ્રેસ અને જમા કરવામાં આવેલી રકમ જોવા મળે છે.

શું પીપીએફ કરતાં વધારે સારી સ્કીમ છે ?

જો બાળકીના શિક્ષણ અને લગ્ન માટે પીપીએફ અને ફિક્સ્ડ ડિપોઝિટમાં રોકાણ કરવાની વિચારણા કરવામાં આવે તો સુકન્યા સમૃદ્ધિ યોજના (SSY) વધુ સારો વિકલ્પ બની શકે છે.

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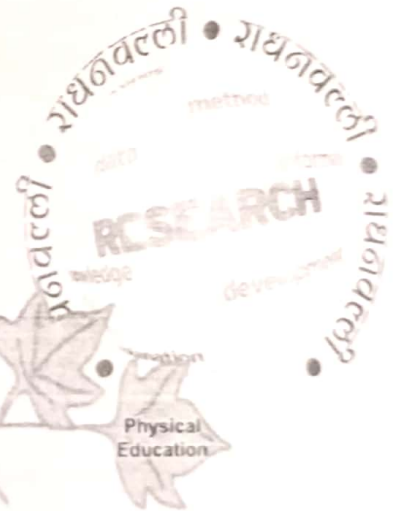
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ગઘકાર બ.ક.ઠાકોર

ડો. મહેન્દ્ર કે. નાઈ

ગુજરાતી વિભાગ ભવનસ

કોલેજ, ઠાકોર

બ.ક ઠાકોર સાચા અર્થમાં સાક્ષારયુગનું સંતાન છે. આપણા એ સમયનાં ઘણા-બધા સાક્ષારો કરતાં તેમનો જ્ઞાનકોષ અને મનોકોષ નોખો-નિરાળો જણાય છે. તેમની લેખિની આહિત્યનાં અનેક ક્ષેત્રોમાં ચાલી છે. પણ આપણા સાહિત્યનાં ઈતિહાસમાં તેઓ વધુ તો કવિતા અને વિચેચનનાં ક્ષેત્રનાં તેમના આગવા અર્પણને કારણે સ્મરણીય છે. તેમનું લેખનકાર્ય ગાંધીયુગનાં સાહિત્યનાં કરતાં સાક્ષારયુગ સાથે અનુસંધાન ધારવે છે. સાહિત્ય વિશે સિદ્ધાંત ચર્ચાઓ તેમ આપણા સર્જતા આહિત્યનું મૂલ્યાંકન એમ બંનેય ક્ષેત્રે વિપુલ લેખન કર્યું છે.

પઘકાર બ.ક ઠાકોર જેટલાં વધુ જાણીતા છે, તેટલા ગઘકાર બ.ક ઠાકોર ઓછા પંકાયા છે. બ.ક ઠાકોરને યાદ કરતા તરત જ - 'વિશાળ શરીર પર જાણે ગરદન વગર જ ગોઠવેલું મોટું માથું, ચિબુકથી છાતી સુધી અનેક વળમાં વિસ્તરતું ગળુ, લબડતા ગાલ અને ઢળતી મૂછો'-આ બ.ક.ઠાકોરની વાલ્ય છબી છે. બ.ક.ઠાકોરની આંતરિક-ભીતરની છબી પણ જોવી જોઈએ. જેમાં તેમનું વ્યક્તિગત અને મિજાજ જોઈ શકાય છે, જે બ.ક.ઠાકોર તેમજ ગઘયને સમજાવા માટે તે જરૂરી લાગે છે.

કિશનસિંહ ચવડા લખે છે: 'બલુકાકા પ્રતિભાશીલ વ્યક્તિ હતા. સત્યાન્વેષી અને નીડર જીવનચત્રી હતા. સાહિત્ય નામના પદાર્થના ઉમદા જાણકાર અને કસબી માણસ હતા; પરંતુ એમનામાં નબળાઈ નહોતી અને નીહી. એક વખતે મેં ઉડતી વતો સંભળી કે બલુકાકાને કોઈ સરકારી ઈલકાબની ઈચ્છા જાગી છે. આ ઈચ્છાની પૂર્તિને માટે એમણે, કેટલાક સરકારમાં અને ગવર્નર પાસે લાગવગ ધરવાતા મિત્રોને વાત પણ કરી છે. તે વખતના ગવર્નરના એક સ્નેહીને વિશેષરૂપે ગવર્નર કાને આ વાત નાંખવાની વિનંતી કરવામાં આવી છે. મને થોડું આશ્ચર્ય અને દુઃખ પણ થયું. પણ આ વતનો સાચો તાગ

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वि-विद्यानगर

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CHARUTAR VIDYA MANDAL

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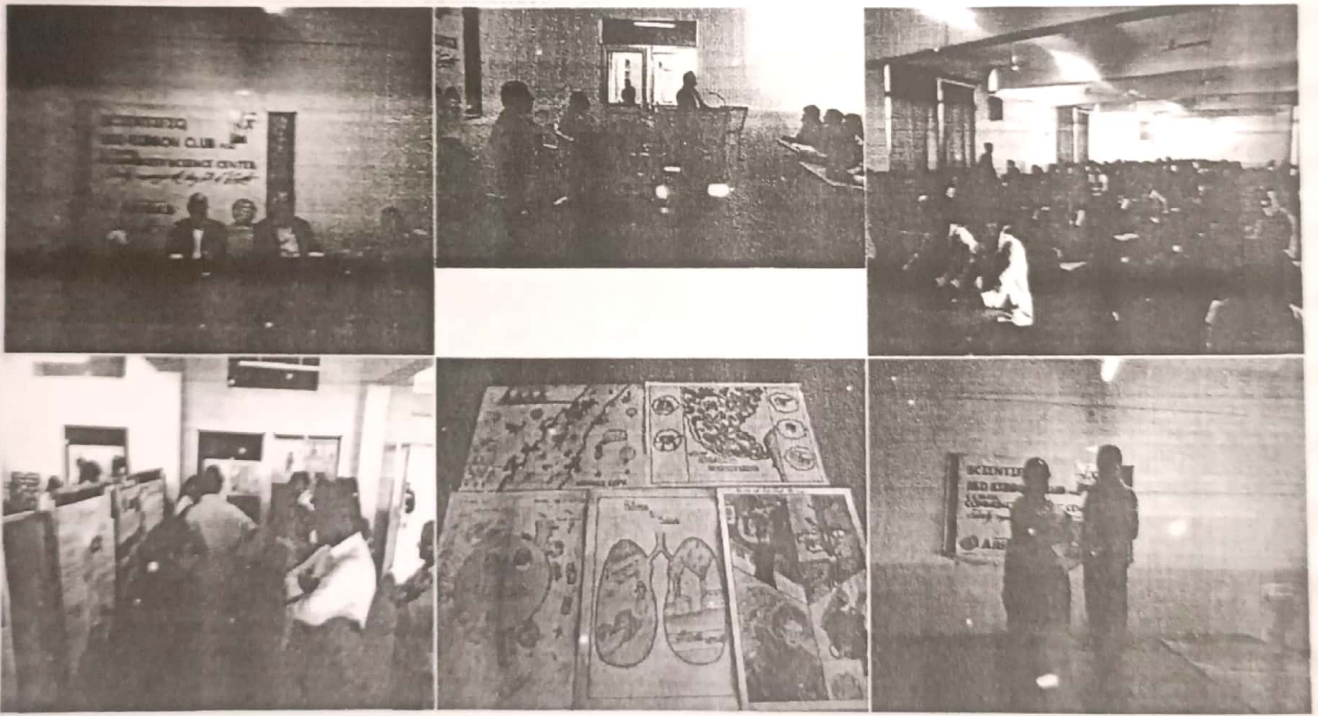
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ચારુતર વિદ્યામંડળ સંચાલિત જીસેટ કોલેજના કેમિકલ એન્જિનિયરીંગ વિભાગ તથા ઈન્ડિયન ઈન્સ્ટિટ્યૂટ ઓફ કેમિકલ એન્જિનિયરિંગના સંયુક્ત ઉપક્રમે યોજાયેલ બે દિવસીય ટેકનીકલ સંમેલન- ટેકનોક્વેસ્ટ ૨૦૧૮ના ઉદ્ઘાટન પ્રસંગે લેવાયેલ તસવીરમાં મુખ્ય મહેમાન શ્રી અશ્વિન પરીખ, સીવીએમનાં માનદમંત્રીશ્રી મંયસ્થ ડૉ. એસ.જી. પટેલ, મુખ્યવક્તા ડૉ.એમ.એસ. રાવ, સંસ્થાના આચાર્યશ્રી ડૉ. હિમાંશુ સોની, વિભાગીય વડા ડૉ. કૌશિકનાથ તથા પ્રધ્યાપક શ્રી વિનય પટેલ નજરે પડે છે. ઈન્સેટમાં પ્રસંગોચિત ઉદ્બોધન કરતાં મુખ્યમહેમાન તથા માનદમંત્રીશ્રી નજરે પડે છે.



ચારુતર વિદ્યામંડળ સંચાલિત એરીબાસ, ન્યૂવિદ્યાનગર ખાતે યોજાયેલ સાઈટિક્ક-૨૦૧૮ કાર્યક્રમ પ્રસંગે લેવાયેલ તસવીરમાં મંયસ્થ વી.પી. સાયન્સ કોલેજનાં આચાર્ય તથા મુખ્ય મહેમાન ડૉ. ભાવેશ પટેલ, એરીબાસના નિયામકશ્રી ડૉ. નિલાંજન રોય, પ્રધ્યાપિકાઓ ડૉ. શિલ્પા ગુપ્તે તથા જીનલ પટેલ દેશ્યમાન થાયછે. અન્ય તસવીરોમાં પ્રસંગોચિત ઉદ્બોધન કરતા નિયામકશ્રી તથા વિવિધ પ્રવૃત્તિઓમાં ભાગ લઈ રહેલ વિદ્યાર્થીગણ દેશ્યમાન થાય છે.

॥ પુસ્તક પરિચય ॥

'પરાત્પર': પ્રમુખ સ્વામી મહારાજ અને અબ્દુલ કલામજીનો જીવનપ્રેરક સંવાદ

મહેન્દ્ર નાઈ

પ્રમુખસ્વામી મહારાજ આધુનિક સમયના સૌથી વધુ પ્રેરણાદાયી આધ્યાત્મિક ગુરુઓમાંના એક હતા, ભગવાનશ્રી સ્વામિનારાયણના પાંચમાં આધ્યાત્મિક અનુગામી હતા. ડૉ.એ.પી.જે. અબ્દુલ કલામ, પ્રમુખ સ્વામીજી સાથેની એક આકસ્મિક મુલાકાતથી આકર્ષાયા અને એ ક્ષણથી પ્રમુખસ્વામીજી તેમના શ્રેષ્ઠ ગુરુ બની રહ્યા.

'પરાત્પર' પુસ્તકમાં પ્રમુખસ્વામી મહારાજ અને આપણા પૂર્વરાષ્ટ્રપતિ મહાત્મા અબ્દુલ કલામજી સાથેની આધ્યાત્મિક વાતો છે, સંવાદ છે, યાત્રા છે. આ પુસ્તક તેમણે મા.શ્રી અરુણ તિવારીજી સાથે લખેલું છે. જેનો ગુજરાતી અનુવાદ અજયભાઈ ઉમટે (મુખ્ય એડિટર, ગુજરાત નવસર્જન સમય) કરેલો છે. આ પુસ્તક કુલ ચાર ભાગમાં અને જુદા-જુદા પેટા મુદ્દાઓને લઈને લખાયેલું છે. (૧) દિવ્ય ઉપસ્થિતિનો અનુભવ (૨) વ્યવહારમાં અધ્યાત્મ (૩) વિજ્ઞાન અને અધ્યાત્મનો સંગમ (૪) રચનાત્મક નેતૃત્વનો વિકાસ. આ મુખ્ય વિભાગોમાં કેટલાંક ઉલ્લેખનીય પેટા મુદ્દાઓ છે, જેમાં 'ભારતનું નેતૃત્વ કરો', 'શાંતિ વધે છે વહેંચવાથી', 'બાળકો સૌનું ભાવિ છે', 'ભગવાનની સાક્ષીએ જીવવું', 'દાન અને ક્ષમા દિવ્ય છે', 'તમામ ચીજોનું જન્મસ્થાન મન છે', 'ધર્મ એટલે પ્રભુ સુધી દોરી જતો પથદર્શક', 'અહિંસાના માર્ગે હાર હોતી નથી', 'છીએ તેના કરતાં પર થવાની પ્રેરણા આપે છે ક્ષમા', 'પરમેશ્વરનું શ્રેષ્ઠ નામ છે કરુણા', 'ધરતી પરનું સૌથી શક્તિશાળી બળ છે માનવીય સહકાર', કુલ ૩૧૦ પૃષ્ઠમાં લખાયેલું આ પુસ્તક 'અંતરરામ વિકસિત કરો, અંતરંતર હે!' જેવી શુભ ભાવનાઓથી આપણને સરાબોર કરે છે.

મહાત્મા અબ્દુલ કલામજી આ પુસ્તક વિશેના પરિચયને 'શ્રદ્ધાનો સાક્ષાત્કાર' ગણાવીને કહે છે કે 'મને મારા શ્રેષ્ઠતમ શિક્ષક અને માર્ગદર્શક પ્રમુખ સ્વામીજી મહારાજનો ભેટો અજાણતાં જ થયો હતો. કદાચ મારી નિયતિ અને મારી જિજ્ઞાસા મને પ્રમુખસ્વામી તરફ દોરી ગઈ હતી. ભારત સરકારના મુખ્યવૈજ્ઞાનિક સલાહકાર તરીકે કચ્છના ભૂકંપ પછી પુનઃ વસવાટનાં કાર્યોની સમીક્ષા કરવા મેં ભૂજની મુલાકાત લીધી હતી. ત્યાં ૧૫મી માર્ચ,

૨૦૦૧ના રોજ મારી મુલાકાત પ્રમુખ સ્વામી મહારાજના એક શિષ્ય સાથુ બ્રહ્મવિહારીદાસજી સાથે થઈ હતી. સાથુ બ્રહ્મવિહારીદાસજીએ મને આશ્ચર્યચકિત કરી દે તેવો એક પ્રશ્ન પૂછ્યો હતો અને તેનો આધ્યાત્મિક જવાબ મને સ્ફૂર્ણો હતો. ત્યારબાદ પ્રમુખસ્વામી મહારાજની વાત સાથુ બ્રહ્મવિહારીદાસના મુખે સાંભળીને, હું અભિભૂત થયો, પ્રમુખ સ્વામી મહારાજને મળવાની ઈચ્છા વ્યક્ત કરી હતી. મારો આશય આવા મહાપુરુષનો પરિચય કેળવવાનો હતો, પણ અલ્પ પરિચય સ્વરૂપે શરૂ થયેલી અમારી આ આકસ્મિક મુલાકાત જાણે 'દૈવી નિયતિ' બની ગઈ હતી.' (પૃ. ૧૪) આ 'શ્રદ્ધાનો ચમત્કાર' આપણને કેવી રીતે થઈ શકે તે જણાવતાં લખ્યું છે કે 'આપણે બધા જાણીએ છીએ કે 'પૂજા સાફ થઈ જાય પછી અરીસો ચમકે છે અને આપણે આપણું પ્રતિબિંબ સ્પષ્ટ પણે જોઈ શકીએ છીએ. શિક્ષણ મેળવવાની કળા પણ તેવી જ છે. આપણે આપણું અજ્ઞાન દૂર કરવાની જ જરૂર છે. આપણે શુદ્ધ અને નૈતિક જીવન જીવીને તેમજ માનવસંવા કરીને આપણી અંદર રહેલી અશુદ્ધિ અને અજ્ઞાન દૂર કરી શકીએ છીએ પછી જુઓ પરમેશ્વર તેનાં કાર્યો કરવા આપણને માધ્યમ બનાવશે.' (પૃ. ૧૩)

આ પુસ્તક લખવાની ઘટના પણ દિવ્યાનુભૂતિ સાથે સંકળાયેલી છે. જુઓ: '૧૧મી માર્ચ, ૨૦૧૪ના રોજ સારંગપુરમાં પ્રમુખ સ્વામીજીને મળીને હું દિલ્હીમાં મારા ઘરે પહોંચ્યો ત્યારે લગભગ મધરાત થઈ ચૂકી હતી. આ અતિ વ્યસ્ત દિવસ પછી આરામ માટે હું ઉપરના રૂમમાં ગયો. મેં છેલ્લા ૫૦ વર્ષથી સૂતાં પહેલાં એક સારું પુસ્તક વાંચવાની આદત કેળવી છે. પથારીમાં બેસીને મેં એ પુસ્તક વાંચવાનું શરૂ કર્યું. મારું મન શાંતિથી ઉભરાઈ રહ્યું હતું. અને એક અજાણી તંદ્રાએ મને ઘેરી લીધો. હું નિદ્રાવસ્થામાં નહોતો. હું સાંભળી શકતો હતો છતાં હું જાગત નહોતો, હું મારો હાથ હલાવી શકતો નહોતો.. મેં એક અવાજ સાંભળ્યો કે 'અરે ઓ અજ્ઞાત સુખી માણસ! જાગો, તમે તમારું ધ્યેય પ્રાપ્ત કરી લીધું છે.' જગતમાં સ્મિત રેલાવવા તમે એ ભાગ્યશાળી વ્યક્તિ છો જેના હાથમાં હું એક પવિત્ર પુસ્તક વિશ્વ સમક્ષ પ્રગટ કરવા માટે મૂકી રહ્યો છું. કયું પુસ્તક? એ પુસ્તક કે જે શબ્દોની ભુલભુલામણીમાં અટવાતી માનવજાતને સાચો માર્ગ ચીધે, પણ એ માટે મને કેમ પસંદ કર્યો? તમે જ તે કરી શકવા સક્ષમ છો. કારણ કે તમારી દૃષ્ટિ અને અભિવ્યક્તિમાં સત્યતા છે. તમને માત્ર

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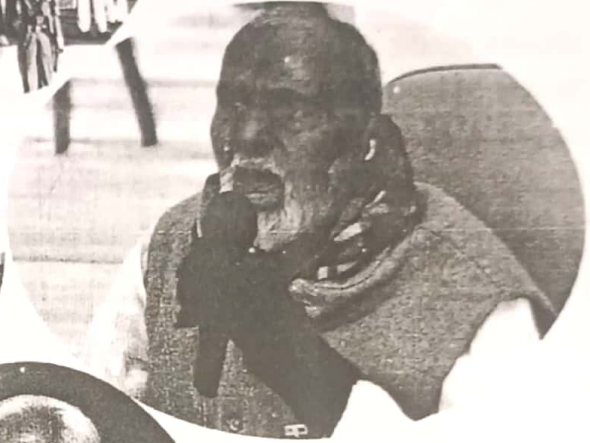
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આત્મા અને આસ્વાદ



સંગીત: અણાદા મેઘવાણી, સરદાર મેલી, નિલિમ મજરાયા

'કંકુચોખા': કંકુ વડે ચોખા અજવાળવાની વાત (લોકગીતોના સરસ આસ્વાદ)

મહેન્દ્ર નાઈ

ગુજરાતી ભાષાનાં જાણીતા કવિ, વાર્તાકાર અને ઉત્તમ સંપાદક હર્ષદભાઈ ત્રિવેદી 'કંકુચોખા' નામે લોકગીતોનાં આસ્વાદનું સરસ મજાનું પુસ્તક ગુજરાતી પ્રજાને આપે છે. આ પુસ્તકમાં ગુજરાત-ગુજરાતીનાં જાણીતા લોકગીતોનો સરસ આસ્વાદ કરાવ્યો છે. આ પુસ્તકનાં બધાં જ આસ્વાદ 'કુમાર' સામયિકમાં પ્રકાશિત થયા છે. આ લેખોને 'કુમાર' સુવર્ણચંદ્રક (૨૦૧૬) પણ પ્રાપ્ત થયો છે. હર્ષદભાઈની આ વાતોને રઘુવીર ચૌધરી, ભોળાભાઈ પટેલે કાન દઈને સાંભળી છે, કંદર્પ મહેતાએ ઓવારણાં લીધા છે, તો; પલાણબાપા આ લોકગીતાસ્વાદને શતાબ્દી તિલક કરે છે. કેમ? સાંભળો - 'સૂર તથા શબ્દના મર્મ સુધી પહોંચીને આસ્વાદો કરાવ્યા છે. હર્ષદ ક્યારેક નવા અર્થો આપે છે અને લોકગીતની વાસ્તવિકતા તેમજ પ્રસ્તુતતાને વધારે છે... 'કંકુચોખા'માંથી પસાર થતાં એમ લાગે છે કે યુગયુગની સ્ત્રીને ખોલવાનું કામ જાણે લોકગીત કરતું આવ્યું છે! આ છે લોકગીતના આસ્વાદની મહત્તા અને લોકગીત સદૈવ જીવંત હોવાની પ્રતીતિ.' (પૃ. ૭, ૮) આ દષ્ટિએ હર્ષદ ત્રિવેદીના આ 'કંકુચોખા' લોકગીતાસ્વાદને શતાબ્દીનું તિલક છે.

'કંકુચોખા' પુસ્તકમાં કુલ ૨૭ લોકગીતનો આસ્વાદ છે. આ આસ્વાદોને પલાણ બાપાએ પણ કંકુચોખાથી તિલક કર્યું છે. (પ્રસ્તાવના, પૃ. ૧૦) આ પુસ્તકને સરસ રીતે ઉઘાડે છે-મૂલવે છે. આપણે ત્યાં કાવ્ય આસ્વાદોનાં થોકબંધ પુસ્તકો મળે છે, પરંતુ લોકગીતોના આસ્વાદોની તંગી છે, કંકુચોખા આ દિશામાં કહો કે આગળ વધવાનો સંકેત કરે છે. અહીં થયેલા આસ્વાદોમાંના કેટલાંક લોકગીતો જોતાવેંત હોઠ ગાવા માંડે છે, તો કેટલીક વખત કાનમાં લોકગીત ગવાતું ભળાય છે. આ જ છે લોકગીતોનો જાદુ! લોકગીત ગાવાની મજા તો પડે જ-પડે પણ આ લોકગીતોનો 'યોગ્ય' અર્થ સમજાય ત્યારે તો ઘણો જ રોમાંચ થાય છે, કહો કે પછી તે વધુ ભાવથી ગાવાની ઉત્કંઠા જાગે છે. એક ભાવક તરીકે કહી શકું કે કેટલાંય લાં...બા સમયથી કંઠમાં અચૂકપણે રહેલા - સમાજોમાં ગવાતા લોકગીતોએ હર્ષદ ત્રિવેદી થકી હૈયું ઉઘાડ્યું છે, અને ગુજરાતી ભાષા-ભાવપ્રેમીઓને ન્યાલ કરી દીધા છે. એવું આ આસ્વાદોમાંથી પસાર થયા પછી લાગે છે. આ રીતે પણ આ આસ્વાદો 'કંકુચોખા'ના અધિકારી બને છે. હર્ષદ ત્રિવેદી આ આસ્વાદો વિશે કહે છે: 'મારો ઇરાદો આ લોકગીતોનો શાસ્ત્રીય અભ્યાસ કે સંશોધન કરવાનો નથી. એમાં કાવ્યતત્ત્વ



મહાકો સાત-આઠ
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સંગ્રહ અંક.

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Crystal structure, Hirshfeld surface analysis and energy frame work of 4-((4-chloro phenyl) (p-tolyl) methyl) piperazin-1-yl) (5H-dipyrido [3, 2-b: 2', 3'-f] azepin-5-yl) methanone, a novel fused di-pyrido azepin derivative

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Abstract - The title compound, 4-((4-chloro phenyl) (p-tolyl) methyl) piperazin-1-yl) (5H-dipyrido [3, 2-b: 2', 3'-f] azepin-5-yl) methanone, a di-pyridine fused azepine derivative, C₃₁H₂₈ClN₅O, comprises of a central distorted piperazin ring linking to fused di-pyridine azepine via carbonyl moiety on one side and to methyl phenyl and chloro phenyl rings assembly on other side. The dihedral angles of 29.07° and 26.29° between the plane of puckered seven membered azepine ring (C24-C25-C26-C27-C32-N36-C19) with those of two pyridine rings (C19-C20-C21-N22-C23-C24 & C27-C28-N29-C30-C31-C32) force the fused bi-pyrido azepine ring system to adopt a butterfly shape. The methyl phenyl ring oriented almost orthogonal to chloro phenyl ring with dihedral angle of 73.57°. Collective contributions of weak interactions like C-H...N, C-H...Cl, C-Cl...π and along with direction specific π-π stacking interactions contribute to the molecular stability. The contributions of weak inter molecular interactions are explored by Hirshfeld surface analysis and 2d fingerprint plots. Energy associated between the molecular pairs is established using 'Energy frame work' analysis.

Keywords — Azepin derivative, Crystal structure, X-ray diffraction, Halogen bond interactions and Hirshfeld surface analysis

I. INTRODUCTION

Azepine is the organic compound with the formula (CH₂)₆NH. It is a cyclic secondary amine, a pioneer to several drugs and pesticides. It is produced by partial hydrogenolysis of hexamethylene diamine [1]. Azepine derivatives, amongst the highly exploited heterocyclic compounds in pharmaceutical industry are an antidepressant and anxiolytic typically used in the treatment of generalized anxiety disorder [2]. Also, some derivatives of azepane are well known nevirapine anti-HIV drug. The drug nevirapine is the first human immunodeficiency virus type 1 (HIV-1) non-nucleoside reverse transcriptase (RT) inhibitor to reach regulatory approval. One of its derivatives is also biologically active for secretory phospholipase A2 with anti-inflammatory activity [3-4]. Analysis of intermolecular interactions using Hirshfeld surface [5-7] provide a convenient means of quantifying the interactions within the crystal structure and offering considerable potential in crystal engineering. As a part of our ongoing research on X-ray crystallographic investigations of novel

organic molecules [8-12], the present study aims to investigate

X-ray crystal structure, Hirshfeld surface analysis, 2d fingerprint plot and energy frame work analysis of 4-((4-chloro phenyl)(p-tolyl)methyl)piperazin-1-yl)(5H-dipyrido [3,2-b: 2',3'-f] azepin-5-yl) methanone. The chemical structure is shown in Figure 1.

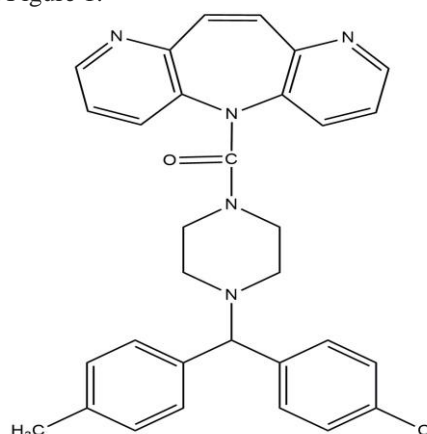


Figure 1 Chemical structure of the molecule

Spectroscopic and Optical analysis of Eosin doped Strontium Tartrate Crystals Grown by Gel Growth Technique

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Abstract - Eosin is a molecular organic dye particular interesting for the spectroscopic applications such as photovoltaic conversion devise and also used in pharmaceuticals. Compounds of tartaric acid find several practical applications in science and technology. In the present investigations eosin dye has been added to strontium chloride supernatant solution to grow strontium tartrate crystals by single diffusion reaction silica gel technique. The growth conditions were optimized by varying the parameters such as pH, concentration of gel, gel setting time and concentration of reactants. Crystals having shiny pink color and sphere-shaped morphology were grown within silica gel column. The functional group of the dye doped strontium tartrate crystals were found by FTIR analysis. The UV-Vis spectrum of strontium tartrate crystals have been revealed that by adding systematically eosin dye in strontium tartrate, optical properties of the grown crystals changed.

Keywords —Eosin dye, FTIR, Gel technique, Strontium tartrate, Single crystal growth and UV

I. INTRODUCTION

In recent years, a number of practical applications in the field of optoelectronics, a great deal of interest has been shown in the study of the optical behavior of various materials [1-3]. Tartaric acid work as an ignoble for the growth of novel materials because of the presence of two hydroxyl and carbonyl groups in tartaric acid permits the ready incorporation of monovalent, divalent or trivalent metal ions [4]. Tartrate single crystals show many interesting physical properties such as ferroelectric, piezoelectric, dielectric, optical and other pertinent characteristics. They are used for non-linear optical devices based on their optical second harmonic generation and optical transmission characteristics. They are also used for fabrication of crystal oscillators, resonators and controlled laser emission [5-9]. Among the several tartrate compounds, strontium tartrate has received greater attention on account of its ferroelectric, nonlinear optical and spectral characteristics [10-13]. A series of pure and mixed single crystals, as well as polycrystalline materials have been grown by several researchers with the aim of identifying new materials for industrial and engineering applications point of view. Currently, great attention has been developed to grow doped crystals and effects of dopants on various properties of single crystals with the

aim of identifying innovative materials for application purposes [14]. Dyes are being used by a large number of industries for different purposes such as dyeing, printing, cosmetics, pharmaceuticals, leather and fluorescent pigment. These are done in order to color their products and make their appearance more attractive. Eosin Y is a pink water soluble acid dye (anionic dye) which also shows yellow-green fluorescence and with the wavelength of maximum absorbance. In the present study, single crystals of pure and eosin-Y dye doped strontium tartrate crystals were grown by the single diffusion gel technique. Optimum growth conditions were determined by varying gel concentration, pH, gel setting time and concentration of reactants. The grown crystals were characterized by FTIR spectral and UV-Vis spectrum. The results obtained are reported and discussed herein.

II. MATERIALS AND METHOD

The anionic dyes used in this study were eosin Y and eosin B. Molecule structure of the dye is shown in Fig. 1. The dye eosin yellow and eosin blue were obtained from Merck, Germany. Stock dye solutions were prepared by dissolving 1.00 g of dyes in 1 L of double distilled water. All working solutions were prepared from the stock solutions by further dilution.



Crystal structure and Hirshfeld surface analysis of methyl 4-[(*E*)-2-(5-bromo-2-methoxybenzylidene)hydrazinyl]-3-nitrobenzoate

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Keywords: crystal structure; hydrazine derivative; graph set motif; hydrogen bond; Hirshfeld surface analysis.

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The title compound, C₁₆H₁₄BrN₃O₅, is a novel halogen (Br) substituted hydrazine derivative. The hydrazine derivatives were the group of compounds with the general structure, R₁R₂C=NNH₂ (Uppal *et al.*, 2011), with the central RC=NNH₂ moiety bridging two different groups on both sides. An all-*trans* configuration of the backbone (RC=NNH₂) results in an extended molecular conformation. The dihedral angle between the 5-bromo-2-methoxyphenyl ring and the nitrophenyl ring is 4.4 (3)°. Intramolecular N–H···O interactions form *S*(6) graph-set motifs, while C–H···O and C–H···N interactions form *S*(5) graph-set motifs. Symmetry-related molecules are linked by C–H···O intermolecular interactions forming an R₂¹(10) graph-set motif. There are nearly face-to-face directional specific π–π stacking interactions between the centroids of the nitrophenyl ring and the benzene ring of the 5-bromo-2-methoxy group [centroid–centroid distance = 3.6121 (5) Å and slippage = 1.115 Å], which also contributes to the molecular packing. The Hirshfeld surface analysis was performed in order to visualize, explore and quantify the intermolecular interactions in the crystal lattice of the title compound.

1. Chemical context

Hydrazine and its derivatives have attracted much attention due to their synthetic potential for organic and inorganic chemical reactions and diverse useful properties (Levrant *et al.*, 2007; Li *et al.*, 2011). Hydrazine-based coupling methods are used in medical biotechnology to couple drugs to targeted antibodies, *e.g.* antibodies against a certain type of cancer cell (Wu *et al.*, 2005). Hydrazine possesses diverse biological and pharmacological properties, such as antimicrobial, anti-inflammatory, analgesic, antifungal, antitubercular, antiviral, anticancer, antiplatelet, antimalarial, anticonvulsant, cardioprotective, antihelminthic, antiprotozoal (Rollas & Küçükgül, 2007), antitrypanosomal and antischistosomiasis (Narang *et al.*, 2012). These compounds contain a C=N bond, which is conjugated with a lone pair of electrons of the functional N atom (Corey & Enders, 1976). The N atom of the hydrazine is nucleophilic and the C atom has both an electrophilic and a nucleophilic nature (Corey & Enders, 1976). The α-hydrogen of hydrazine is more potent than that of acidic ketones (Belskaya *et al.*, 2010). The combination of hydrazine with other functional groups results in new compounds with unique physical and chemical characteristics (Xavier *et al.*, 2012). Owing to their biological and pharmacological properties,

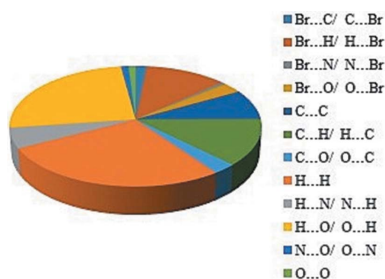


Image of Woman in Select Fictions of Nayantara

Hardik S Bhatt

Research Scholar

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ABSTRACT

Indian Literature in English has traveled far to accomplish its present magnificence and glory. The anecdotal worries of female writers investigate the universe of females, their sufferings as casualties of male authority; they likewise express social, financial and political changes in Indian culture. Amongst female authors, Nayantara Sahgal has earned a different space for their specific consideration towards mental understanding and existential concerns. The new age of essayists discussed the self-acknowledgment of woman. The high class, taught, sensible women moved toward becoming hero in her novels. Their women were new class of women whose lives were not pervaded by issues of share or neediness. Nayantara Sahgal's women characters are the casualties of a male-commanded society. In her novels men are not generally heathens or oppressors. She investigates the character of the oppressor and demonstrates a comprehensive way to deal with the issues of women through her novels. An endeavor has been made through this paper about the status of Indian woman in the compositions of Nayantara Sahgal in which they speak to new ethical quality, as indicated by which female isn't to be taken as a negligible toy, a question of desire and passing delight, yet man's equivalent and regarded accomplice. Nayantara Sahgal's female characters without a doubt uncover their women's activist belief system. This paper looks to analyze picture of female character in *A Time To Be Happy* (1957), *This Time of Morning* (1965), *The Day in Shadow* (1971) and *Mistaken Identity* (1988)

Nayantara Sahgal developed as a standout amongst the hugest voices in the domain of Indian English fiction. Women who are aware of their enthusiastic needs and make progress toward self-satisfaction dismissing the current customs and social set-up and ache for a more liberal and capricious lifestyle finds their place in the novels of Nayantara Sahgal. Her novels depict females trampled and abused in light of their reliance upon men and the nerve racking knowledge they need to look in their battle to leave the servitude and remain individually feet. The hardship and enduring engaged with battling against a built up request, the breaking knowledge of separation and the resultant distance among guardians and kids frame the topical worry of Sahgal's novels.

Sahgal's novels: *A Time to be Happy* (1957), *This Time of Morning* (1965), *The Day in Shadow* (1971), *Mistaken Identity* (1988) depicts the sensibility of female, how a female watches out at herself and her issues. She feels that female should endeavor to comprehend and acknowledge herself as a person and not similarly as a member to some male life. In her novels females speak to various types of ideals. They don't endure yet keep up their position. The novels of Sahgal discuss females who are mistreated by marriage, by political conditions, by mishaps of history. The vast majority of her females characters have additional conjugal association with at least one than one individual. Her females are casualties of a regular society which does not allow females to attest their rights relating to their individual opportunity. Females who feel baffled either due to conjugal disharmony or depression in life is appeared to enjoy social or religious exercises.

In Sahgal's tale *A Time to be Happy* (1957), Maya is a female who attempts to submerge her misery and disappointment in social work and religion. Sahgal is

profoundly worried about the disappointment of conjugal connections and the depression of living; subsequently the vast majority of her females remarry. Maya is a quiet unfortunate casualty at the sacrificial table of marriage. Sahgal's females characters endure in light of the fact that they decline to submerge their uniqueness and stick to their own personality no matter what. Maya endures on the grounds that she declines to lose her personality. Sahgal demonstrates her intense familiarity with the reliant status of females in the public eye. *A Time to be Happy* investigates females' scan for independence both inside marriage as equivalent accomplices and without it as person.

Because of lacking affection between the couple, Maya stays childless, which is additionally a reason for her despondency? Maya is a quiet casualty of the result of marriage. She has stood up for herself from getting to be tame and meek housewife. Maya as well as endure in light of the fact that they decline to lose their character. Ammaji is a delegate of the more established age while Maya has a place with the change time frame. Sahgal demonstrates her intense attention to the needy status of females in the public arena. She knows about the binding job of marriage as an organization for females. *A Time to be Happy* investigates females' scan for singularity both inside marriage as equivalent accomplices and without it as a person. For Maya, marriage was destined from the earliest starting point, primarily by virtue of the contradictory identities of her better half and herself. The accompanying statement underpins the equivalent:

She had the cool virtue of the eucalyptus, as contrasted and his unrestrained gulmohur. She was the mirror - smooth lake to his surging cascade. (A Time to be Happy, 42)



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ભારતનું બંધારણ અને આદિવાસી અધિકારો

ડૉ. કાશીરામ સી. રાઠવા

ભારતનું બંધારણ ભારતીય કાયદો છે એટલું જ નહિ પણ બંધારણ એક પવિત્ર દસ્તાવેજ છે. તેમાં સ્થાન પામેલા અગત્યના આપણા અધિકારો પણ પવિત્ર છે, તેબંધારણ દ્વારા સ્વીકારવામાં આવેલ છે. ભારતના બંધારણમાં બધા જ માનવ અધિકારોનો સમાવેશ કરવામાં આવ્યો છે. આમુખ, મૂળભૂત હકો અને માર્ગદર્શન સિદ્ધાંતો સાથોસાથ મળીને માનવ અધિકારના વૈશ્વિક ઢંઢેરાના મૂળભૂત સિદ્ધાંતોને તથા રાજકીય અને નાગરિક અધિકારોના કરારનામા તથા આર્થિક, સામાજિક અને સાંસ્કૃતિક અધિકારોને પણ પ્રતિબિંબિત કરે છે.

આમુખમાં દર્શાવવામાં આવ્યું છે કે ભારતના લોકોને વિધિસર રીતે તેના નાગરિકોને નીચે મુજબ મેળવવાની પ્રતિબદ્ધતાવ્યક્ત કરી છે.

“સામાજિક, આર્થિક અને રાજકીય ન્યાય.

વિચાર, વાણી, માન્યતા, (શ્રદ્ધા) વિશ્વાસ અને પૂજ્યભાવ.

મોભા અને તકની સમાનતા તથા

રાષ્ટ્રીય એકતા અને અખંડીતતા, વ્યક્તિના મોભાને જાળવીને બધા સાથે બધુત્વની

ભાવનામાં વૃદ્ધિ.”

બંધારણીય અધિકારો આપણને ડૉ. બાબાસાહેબ આંબેડકરે આપ્યાં છે. ડૉ. બાબાસાહેબ આંબેડકરના (વડપણ) હેઠળ બંધારણની રચના કરવામાં આવેલ છે. ત્યારે તેમણે તે વખતની આદિવાસી જનસંખ્યાના આધાર પર આપણને બંધારણીય અધિકારો આપ્યાં છે.

આદિવાસીઓને લગતા સંવિધાન અધિકારો ઘડવામાં યોગદાન આપનારા આદિવાસીઓના એકમાત્ર નેતા જયપાલસિંહ મુંડા હતા. તેમણે આદિવાસીઓની ઓળખ અને અધિકારો માટે સઘન ચિંતન બંધારણ સભામાં રજૂ કરેલ છે, જે નીચે મુજબ છે.

1. આદિવાસી આ દેશનો મૂળ નિવાસી છે અને પૂરો ભારત દેશ આદિવાસીઓનો છે.
2. આદિવાસીઓ હિન્દુ નથી. હિન્દુ કરણ એ બિન-આદિવાસી બનાવવા બરાબર છે.
3. હિન્દુ મહાસભાનું આદિવાસીઓનું હિન્દુ બનાવવું એ આદિવાસી સંખ્યા ઓછી કરવાનું ષડ્યંત્ર છે.
4. આદિવાસીઓની ભાષા ખુબ જ જૂની પ્રાગત છે. તેને બંધારણીય માન્યતા મળવી જોઈએ.
5. (Scheduled Tribes) “શિડયુલ ટ્રાઇબ” શબ્દનું ભાષાંતર “આદિવાસી” થવું જોઈએ.

આદિવાસીઓ માટેના અધિકારો કેવા હોવા જોઈએ, એ માટેની સમજણ જયપાલસિંહે ડૉ. બાબાસાહેબ આંબેડકરને આપી. અને ડૉ. બાબાસાહેબ આંબેડકરે તેમના અભ્યાસ, તેમનું આંતર રાષ્ટ્રીય કાયદાકીય જ્ઞાન વગેરે ધ્યાનમાં રાખી અને આદિવાસીઓ સંબંધી ખાસ જોગવાઈઓ લેખિત સ્વરૂપે આપીને બંધારણમાં અધિકારો આપવામાં આવ્યાં છે.

ભારતનું સંવિધાન અવલોકન કરતાં કલમ-૨૪૪ -(૧) માં અનુસૂચિત વિસ્તારો અને આદિવાસી વિસ્તારોનો વહીવટમાં અનુસૂચિત વિસ્તાર તરીકે જાહેર કરવાની સત્તા રાષ્ટ્ર પ્રમુખને આપવામાં આવી છે. આવા વિસ્તારો આદિવાસી ક્ષેત્રો ગણાય છે. આદિવાસી વિસ્તાર મૂળ નિવાસી વિસ્તાર કે પરંપરાગત બંધારણીય હક્ક ધરાવે છે.

બંધારણની પાંચમી અને છઠ્ઠી અનુસૂચિમાં બીજા કેટલાક હક્કો આપવામાં આવ્યાં છે.

કલમ-૨૪૪(૧)

(૧) સંલગ્ન પાંચમી અનુસૂચિત - (૩) માં જણાવેલ છે. રાજ્યમાં તે દર વર્ષે રાષ્ટ્રપતિને આદિવાસી વિસ્તારોના વહીવટ સંબંધી અહેવાલ આપવો પડશે. તથા રાષ્ટ્રપતિ રાજ્યપાલને અવાર નવાર સલાહ -સૂચન આપતા રહેશે.

અનુસૂચિત-૫(૪) (૧)

(૧) માં જણાવ્યું છે કે, આદિવાસીના પ્રશ્નો અંગે સલાહ-સૂચના આપવા અંગે એક આદિવાસી સલાહકાર સમિતિ નીમવામાં આવશે. જેની સભ્ય સંખ્યા બન=૩૦ જેટલી રહેશે. તેમાં ૩/૪ સભ્યો વિધાનસભાના આદિવાસી સભ્યો હશે. અને આદિવાસી ધારા સભ્યોની સંખ્યા ઓછી હોય તો આદિવાસી વિસ્તારના આદિવાસી સભ્યની નિમણૂક કરી શકાશે.

આ સમિતિ આદિવાસીના વિકાસ કલ્યાણ સંબંધી વાતો ઉપર સલાહ સૂચન કરશે. એટલું જ નહિ, પણ આદિવાસી સલાહકાર સમિતિ જ્યાં સુધી પરવાનગી ન આપે ત્યાં સુધી રાજ્યપાલ આદિવાસીઓ અંગેનો કોઈ પણ કાયદો લાગુ પડી શકશે નહિ.

બંધારણ કલમ -૧૬(૪)

કલમ-૩૩૫ માં નોકરી માટે રક્ષણ આપવામાં આવેલ છે. આમાં નોકરીઓમાં જે રક્ષણ આપવામાં આવેલ છે. તેમાં કોઈ સમય મર્યાદા નક્કી કરાઈ નથી.

કલમ-૧૫(૪)

સામાજિક અને શૈક્ષણિક દૃષ્ટિએ પછાત વર્ગો નાગરિકોના કોઈ વર્ગોના ઉત્કર્ષ અથવા અનુસૂચિત જાતિઓ અને અનુસૂચિત આદિજાતિઓ માટે ખાસ કોઈ જોગવાઈ કરવામાં રાજ્યને કોઈ બાધ આવશે નહિ.

કલમ - ૩૩૦(૧) (ક)

લોકસભામાં અનુસૂચિત જાતિઓ અને અનુસૂચિત આદિજાતિઓ માટે બેઠકો અનામત રાખવામાં આવી છે. દા:ત. ગુજરાતમાં આદિવાસીની-૪ સીટ અને અનુ.જાતી-૨ સીટો અનામત રાખેલ છે.

કલમ-૩૩૨

રાજ્યની વિધાનસભામાં અનુસૂચિત જાતિઓ અને અનુસૂચિત આદિજાતિઓ માટે અનામત રાખવામાં આવેલ છે.

દા:ત. ગુજરાતમાં આદિવાસીઓ માટે ૨૬-સીટો અને દલિતો માટે ૧૩ બેઠકો આનામત રાખેલ છે.

કલમ-૩૩૫

સંઘ અને રાજ્યના કામકાજ સાથે સંબંધ ધરાવતી સેવાઓ સંબંધી નોકરી પર નિમણૂક કરતી વખતે અનુસૂચિત જાતિઓ અને અનુસૂચિત આદિજાતિઓ માટે જગ્યાઓ અનામત રાખવામાં આવેલ છે.

કલમ-૩૩૮

અનુસૂચિત જાતિઓ અને અનુસૂચિત આદિજાતિઓ માટે "રાષ્ટ્રીયકમિશન" નીમવાની જોગવાઈ કરવામાં આવેલ છે.

કલમ-૩૩૯

રાષ્ટ્રપતિ આં સંવિધાનના આરંભ પછી કોઈ પણ સમયે હુકમ કરીને રાજ્યોમાંના અનુસૂચિત વિસ્તારોના વહીવટ અને તેમાંથી અનુસૂચિત આદિજાતિઓ કલ્યાણ અંગે રીપોર્ટ કરવા એક કમિશન નીમી શકશે.

કલમ-૩૪૧

અનુસૂચિત જાતિઓ કયા જાતિ, જૂથો/ જાતિઓ તે બાબતમાં નક્કી કરી જાહેરનામાં દ્વારા પ્રસિદ્ધ કરે છે.

કલમ - ૩૪૨

અનુસૂચિત જાતિઓના ક્યાં આદિવાસી જૂથો / આદીજાતીઓને ગણવી તે બાબત નક્કી કરી જાહેરનામાં દ્વારા પ્રસિદ્ધ કરે છે.

બંધારણની કલમ -૩૩૦ અને કલમ-૩૩૨ માં અનુક્રમે લોકસભા અને રાજ્યનીવિધાન સભામાં રાજનૈતિક રક્ષણ આપવામાં આવેલ છે.

કલમ-૨૭૫

કલમ-૨૭૫ માં જણાવવામાં આવેલ છે કે ભારત સરકાર બજેટ બનાવે છે, ત્યારે આદીજાતિઓના વિકાસ માટે સરકાર અલગ રકમ સુરક્ષિત રાખશે. જેફકત આદિવાસીઓ માટે જ વપરાશે. તેવી જોગવાઈ કરવામાં આવેલ છે.

આ ઉપરાંત બંધારણમાં આદિવાસીઓ માટે મહત્વના અને વિશેષ અધિકારો આપવામાં આવ્યાં છે. તેમાં

(૧) માંલીકીયપણાનો.

(૨) સ્વશાસનના અધિકારો.

૧. અધિકારો અનુસાર અનુસૂચિત જનજાતિના સભ્યોની માલિકીની જમીન- બિન અનુસૂચિત -જનજાતિના સભ્યોને તબદીલ થવી આટકાવવા માટે મુંબઈ જમીન મહેસુલ અધિ.૧૮૭૯ની કલમ-૭૩-૬૬- ના અધિકારો જિલ્લા પંચાયતોને નીહીન કરવામાં આવ્યાં છે.

૨. આદિવાસીઓની માલિકી જમીનમાંથી જે ખનીજ સંપત્તિઓ મળે છે. તે આદિવાસીઓની પંચાયત કે કે ગ્રામ સભાની સંપત્તિ સિવાય વેચાણ કરી શકાય નહીં, આદિવાસી વિસ્તારોમાં ગ્રામ સભાનો અધિકાર છે. ત્યાં આદિવાસી માલિકી છે.

આસંદર્ભે જ્યાં આદિવાસી વિસ્તારોમાં જળ, જંગલ અને અન્ય કુદરતી સંપત્તિ છે. ત્યાં આદિવાસીઓની માલિકી છે. ત્યાં બિન આદિવાસીઓની માલિકીની છે. ત્યાં બિન આદિવાસીઓનો હક્ક નથી. આંધ્ર પ્રદેશ એન્ડ આદર્શ યુંકાદામાં સર્વોચ્ચ અદાલતે ૧૯૯૭ ના નિર્ણયમાં નીર્દોષ કરી સ્પષ્ટ જણાવવામાં આવ્યું છે, કે જ્યાં આદિવાસીઓની જમીન છે. ત્યાં ખનીજ સંપત્તિ છે. તો તે આદિવાસીઓની માલિકીની છે. એટલે કે, જે આદિવાસીઓનું છે. તે આદિવાસીઓને જ મળવું જોઈએ.

બંધારણ આપણને સ્વશાસનનો પણ અધિકાર પણ આપે છે કે, આદિવાસીઓમાં જ્યારે અંદરો અંદર વિવાદ ઊભો થાય તો તે માટે સિંધા હાઇકોર્ટમાં જવાની જરૂર રહેતી નથી. તે માટે તેઓ આદિવાસી પંચો, પંચાયતો આદિવાસી પરંપરા પ્રમાણે તેનો નિકાલ લાવી શકે છે.

આમ ડૉ. બાબા સાહેબ આંબેડકરે આદિવાસી અને દલિત નાગરિકો માટેની તેઓની પોતાની ફરજ ગણી સંબંધી ખાસ જોગવાઈઓ લેખિત સ્વરૂપમાં આપી, માનવતાવાદી હિમાયત કરી, બંધારણમાં કલમોમાં સ્થાન આપી; અધિકારોની જોગવાઈ કરવામાં આવેલ છે.

સંદર્ભ:

૧. આપણા અધિકારોને જાણીએ: આદિવાસી-દલિતો -લઘુમતીઓ સંપાદક: છગનભાઈ કે. સોલંકી(સમાજ માનવ શાસ્ત્રી)
૨. યોજના. વર્ષ-૨૦૦૧ પેજ નં. ૩૧

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डॉ. महेन्द्र नायी

'राधे तेरे डुंगरिया पर' निबंध संग्रह में भोलाभाई पटेल भारत के विभिन्न प्रांतों के प्रवास का वर्णन करते हुए विस्तार सहित वर्णन देते हैं। उनको इस लेखनी में उत्कट प्रकृति का लगाव, समाज, साहित्य, संस्कृति की बातें और भारतीय जनजीवन के प्रवाह को पहचानने का उत्साह देख सकते हैं। उनके कथयित्व में अभिजात अभ्यासी की छाप उठती है। भोलाभाई के निबंध संग्रह में प्रवास निबंध की अधिकता है। प्रवास विषयक निबंध में परिभ्रमण नहीं, बल्कि सौंदर्य भ्रमण विशेष आकृष्ट है। प्रवास - प्रसंग - स्थल निमित्त बने रहते हैं। निबंधकार को रसिकवृत्ति लगभग रचनाओं का चालकबल बनकर आती है। प्रवास निबंध संग्रह में परिष्कृत रुचिवाले समृद्ध व्यक्तित्व के साथ रसिक भावुकों को जोड़ देता है। सौंदर्य को मानना, दिखाना, भौज कराना यही निबंधकार का उपक्रम लगता है। निबंध में अनुभवित सर्जक का व्यक्तित्व उसे उज्ज्वल बनाता है। ये सभी रचनाओं को एक अँकोड़े में रखनेवाले सर्जक का प्रसन्न, मधुर व्यक्तित्व है। निबंधकार यहाँ धर्मकलाओं का प्रश्रय पाकर मानव की सर्जनशक्ति की चरमसीमाओं को छू लेता है। कह सकते हैं कि निबंधकार ने यहाँ अद्भुत उड़ान भरी है। अलग अलग स्थलों को यहाँ शब्दों में मंडित करके, शब्द देह देकर ये स्थलों को देखने की जिज्ञासा उत्पन्न करानेवाले भोलाभाई पटेल इस अर्थ में 'स्थपति' तो हैं ही। निबंधकार द्वारा अनुभवित उस समय की ताजी पलें आज भी पढ़ते हुए ताजगीमय दिखाई देती हैं, ये अभिव्यक्त का कैसा कमाल!

यह भ्रमणवृत्त सात खंडों में विभजित है। अलग अलग समय खंडों में हुए ये भ्रमण भारतवर्ष के विभिन्न हिस्सों में हुए हैं। ये सात भ्रमणवृत्त को लेखक ने एक साथ लेकर विविधता में एकता का दर्शन कराकर भारत की सांस्कृतिक चेतना का भी परिचय कराया है। इस किताब का शीर्षक मध्यकालीन भक्त कवयित्री मीराबाई की एक सुप्रसिद्ध काव्य पंक्ति 'राधे तेरे डुंगरिया पे बोले जीने मोर' का पूर्वार्ध है। निबंधकार ने आधार

दर्शन में लिखा है उस मुताबिक : 'वृंदावन की यात्रा में अज्ञेय जी साथ रहे इस बात का अब स्मरण करने का रहा, स्मरण ताजा रखने के लिए ही संभवित हो मन में 'राधा तेरे डुंगरिया पर' शीर्षक का आग्रह रहा है।'१ निबंधकार इस संग्रह के रहस्य को खोलते हुए लिखते हैं :- 'राधा तेरे डुंगरिया पर' ऐसा भ्रमणवृत्त है जिसमें डुंगर, पहाड़, नदी, सागर, सरोवर, अम्र, आकाश, पर्ण, पुष्प, वन, नगर, गाँव, तीर्थ, मंदिर, पथ, घाट, शिल्प, स्थापत्य, चित्र तथा भानवीय संपर्क से ललित भव्य उदात्त गम्य निहारते पर्युत्सुक चेतना के भीने बोल हैं।'२

निबंधकार जिस स्थल का प्रवास करते हैं, उस स्थल के लिए, भूतकाल के लिए, उसके महत्त्व के लिए बहुत कुछ जानते हैं, इसलिए उस स्थल के लिए उनके मन में एक चित्र भी खड़ा होता है। और जिस जिस स्थल की मुलाकात लेते वक्त खुद ने माना हुआ पढ़ा हुआ सुना हुआ है उसे सही रूप से मिलाने की कोशिश करते हैं। सही रूप मिल जाता है। वहाँ आनंद की अनुभूति होती है, अगर सही रूप नहीं मिलता तो आवेश भी आता है। ऐसे अनुभव के बाद कहीं भी वे वास्तविक दर्शन का औत्सुक्य गुमाते नहीं। हाँ, इस दर्शन से निराश होने के बाद भी मनुष्य के दिल को टूटने में देर सी? ऐसा वहाँ नहीं बनता।

भोलाभाई पटेल इस संग्रह के सात भ्रमणवृत्त को विभिन्न स्तर से आलेखते हैं। जिस तिस स्थल के साहित्यिक सांस्कृतिक संदर्भों को देकर इसके जरिये उनके मन में सर्जा हुआ चित्र आलेखते हैं। बाद में तुरंत ही वास्तविक दर्शन की छाप (निशान) स्पष्ट रूप में आलेखते हैं। कभी ये दो चित्र के बीच का विरोध वे नर्म गर्म के द्वारा पेश करते हैं।

भोलाभाई पटेल तीर्थक्षेत्रों की यात्रा केवल भक्तिभाव के आशय से करते हैं, ऐसा नहीं, उनकी यात्रा के पीछे अनेक उद्देश्य हैं। अभिगम बौद्धिक है, फिर भी श्रद्धा का कहीं भी उपहास नहीं करते। गिरिराज गोवर्धन का स्वरूप अज्ञेय जी को या उनके अनुयायियों को स्पर्शता नहीं, फिर भी यहाँ अनगिनत

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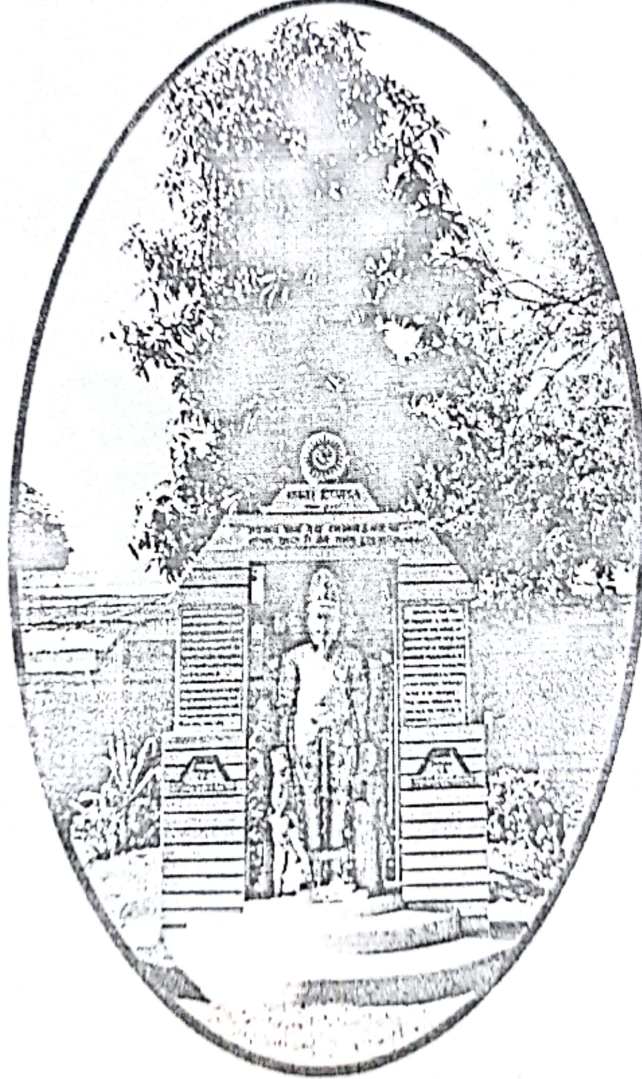
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આજે દરેક ઘર ઝાંખે છે- અજવાળી બા

મહેન્દ્ર નાઇ

'અમે સહુ સાથે રહીશું', 'પર એ જ સ્વર્ગ', 'પરિવાર ભાવના', 'પરિવાર કાવ્યો', 'લવ યુ મમ્મી', 'લવ યુ પપ્પા', 'થેંક્યુ પપ્પા', 'થેંક્યુ મમ્મી', 'દીકરી વ્હાલનો દરિયો', 'તુલસી ક્યારાના દીવા', 'મંગલ ભવન અમંગલહારી', 'માની બોલી સૌથી વ્હાલી', 'મારી મમ્મી-મારા પપ્પા', 'મારી બાની ઇચ્છા', 'પિતા-પપ્પા ડેડી', 'પહેલો અઠ્ઠર', 'મા એ મા', સુખી જીવનની ચાવી', 'દુલાહ દામ્પત્ય', 'મેરેજ રોકસ', 'રામાયણનું ચિંતન', 'મહાભારતનું ચિંતન', 'સંસાર રામાયણ', જેવા કેટલાક પુસ્તકોમાંથી હું પસાર થયો છું, મોટા ભાગનાં પુસ્તકો મા પરિવાર 'દીક્ષ' વધારે છે, જો કે આ બધાં પુસ્તકોમાં રહેલું 'હાથપગ' કોઈપણ વાચકને પરિવાર અભિમુખ તો કરે જ છે, પ...પ્ર આટલી બધી ચિંતા-ચિંતન આ સમયમાં કેમ? આજે પરિવારો તૂટતા જાય છે, ફૂટતા જાય છે, કુટુંબવ્યવસ્થા વેરવેર-હેરવેર બનતી જાય છે, ત્યારે કુટુંબ ભાવનાની મહત્તા સમજાય છે. વર્તમાન સમયમાં જેટલો સમય ટી.વી. અને મોબાઇલને અપાય છે તેટલો સમય પરિવારને આપીએ છીએ? એક જ ઘરમાં રહેતા પાંચ માણસ વચ્ચે માઈલો સુધીનું અં...ત...ર... થઈ ગયું છે. પતિને પત્ની માટે, પત્નીને પતિ માટે, મમ્મી-પપ્પાને સંતાનો માટે કે દાદા-દાદી માટે હવે સમય રહ્યો નથી તેનું પરિણામ તેજ ગતિથી વૃદ્ધાશ્રમો શિભવગઈ રહ્યાં છે. સંયુક્ત પરિવારો તૂટતા જાય છે. વૃદ્ધાશ્રમો વધતાં જાય છે, ભૂલકાંઓ માટે 'ડે-કેર' જેવી સંસ્થાઓ પણ ઘણી બધી! ભૌતિક સુવિધાઓથી લદોલદ પરિવારોનાં બાળકો જાણે-અજાણે પારિવારિક ભાવનાનાં દુષ્પ્રણામો મોંઘાં (કે નાનાં?) થતાં જાય છે. આપણી કુટુંબ ભાવનાથી આપણી સંસ્કૃતિ ઓળખાતી હતી એની ચિંતા-ચિંતન થવું આજે જરૂરી લાગે છે.

એક સમય હતો કે બા અભાવ હોય, બાપુજી થોડું ભણેલા હોય છતાંય નાના-મોટા ઝપટાઓ-એકબીજાની ઊંચપાંચ સહન કરીને ચિલ્લર જમુબિલી કે ગોહન જમુબિલી થઈ જતા આપણે જોયા છે. આજે લગ્ન-સગાઈનો પ્રશ્ન આવે ત્યારે 'શિલ્પ' કેન્દ્રિયાને (હાંવું જરૂરી પણ છે જ.) કેટલું ભણેલા છે- બંને આટલું ભણેલા હોય-રંગેરંગે જો પ્રપ-અટળક ખર્ચ થાય. પણ પત્ની વખત પરિણામ એ આવે છે કે

'હુંડાએવ'ની અગ્યા વાળી જાય છે. બિલકલ 'અભાવ' છતાં એકબીજાને 'રક્તબી' રાખવાની સમજણ અને વધુ ભણેલા છતાંય એકબીજાને 'સમજવા' બંનમાંથી અડધ તોપાર નહીં છોડે સોનું પણ મળી જાય તો, ક્યાક પિતૃભ પછા. આ સમયમાં મને મિત્ર ભરત દાકોરની 'થર લાઈબ્રેરી'માંથી "નાનાભાઈનાં ધર્મ પત્ની-અજવાળી બા" (લે. ભરત ના. ભટ્ટ) મળે છે. હું એક જ ભેંકકમાં વાંગી ગયો- મને તો આ ગરિત્ર વાંગીને ઘણું ઘણું સમજાયું પણ ખરું. અજવાળી બાનાં ગરિત્રથી થોડું અજવાળું વાચકના જીવનમાં થાય તેવી શક્યતાને નકારી શકાય તેમ નથી. સાંપ્રત સમયને આજે ગુણસુંદરી કે અજવાળી બા જેવા પાત્રોની ખાસી જરૂર છે. થુંક ભાષાનો પ્રભાવ વધતો જાય છે, ત્યારે હૃદય ભાષા આવા પ્રકારનાં ગરિત્રોમાંથી હાથ લાગે-હોંક પર લાગે તેની તાત્તી જરૂર-રિયાત છે. લેખક ભરત ભટ્ટે અહીં આ યત્ન પરિવારોને ઉપયોગી થાય તે રીતે કર્યો છે તેમણે આ ગરિત્રનું લેખન-સ્મૃતિથી, વ્યક્ત સ્મરણથી, હાથવગી માહિતીથી આલોખવાનો સારો યત્ન કર્યો છે.

આ પુસ્તકમાં કુલ પાંચ ખંડ અને પરિશિષ્ટો થઈને કુલ ૧૪૬ પૃષ્ઠમાં લખાયેલ છે. બાનો જન્મ, પરિવાર, ભણતર, દામ્પત્યજીવન, માતૃત્વ, સ્વભાવ, પુત્ર, પત્ની, માતા, બહેન, સંઘર્ષ, સંસ્થાઓમાં જવાબદારી, આઘાત-પ્રત્યાઘાત, આચારયુસ્તતા, ધાર્મિકતા, સંસ્કારસિંચન, માતૃહૃદય, આતિથ્ય, બાની ભાષા, વૈધવ્ય, મર્યાદાઓ, વિશેષતાઓ વગેરે વિશે ભરત ભટ્ટે હૃદયસ્પર્શી વાતો કરી છે, અંતે પરિશિષ્ટો બાના અવસાન પછીના આશ્વાસનપત્રો પણ 'બા' વિશે ઘણું-ઘણું સૂચવી જાય છે, નાનાભાઈના જીવનની તવારીખો, 'અજવાળી બા' વિશેના કેટલાક પ્રતિભાવો, અજવાળી બાનાં પૂર્વજો-અનુજો (વંશાવળી) મળે છે. જે નાનાભાઈ ભટ્ટ અને અજવાળી 'બા'ના સમગ્ર પરિવારથી વાચકને સરસ રીતે વાકેફ કરે છે.

નાનાભાઈનાં ધર્મપત્ની, 'અજવાળી બા' વિશે વાંગીએ તે પહેલાં સી, સી સન્માન, પ્રસન્ન દામ્પત્ય જીવનના મોટેરા મતિમાને આલોખતા અવતરણ પણ વાચકને વિચારતા કરે તેવા છે જુઓ-

'અમે બધા બહારની દુનિયામાં મોટા ગણાઈએ છીએ, આદર પામીએ છીએ તેની પાછળ અમારી ગૃહિણીઓનું મુંઝું પીઠબળ હોય છે. એ અમારી કરોડ છે. ખજ ફરકે ત્યારે કાઠી ટંકાઈને ન દેખાઈને તેને ઊંચો હલેરાતો રાખે છે તેમ!' - નાનાભાઈ ભટ્ટ

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"Education should be imparted with a view to the type of society that we wish to build. We are working for a modern democracy built on the values of human dignity and equality. These are only ideals: we should make them living force. Our vision of the future should include these great principles."

Dr. Sarvapalli Radhakrishnan

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અર્ચના સમાજીય કલ્પના અને દુષ્કર્મ વચ્ચે

પ્રો. મણિકા જી. ગાંધી

વલસાડી યુનિવર્સિટી, વલસાડ, ગુજરાત, ભારત

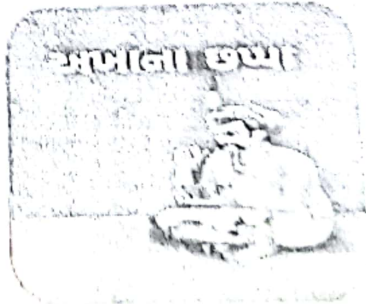
વસ્તાવના

કોઈપણ સાહિત્ય સર્જકનો ધર્મ આત્મ-અભિવ્યક્તિનો હોય છે, અન્ય હોતો નથી. કોઈપણ સર્જક વિજ્ઞાનદેવ સ્વાસ્થર લય છે, જેમ રસોમાં માતૃત્વની કાંચલા સનાતન ભાગ છે, તેમ સાહિત્યકાર પણ આંતરિક સર્જકશક્તિને સંતોષવા માટે સાહિત્યનું સર્જન કરે છે, દરેક સાહિત્યકાર પોતાની કલ્પના પદ્ધતિને લેણે લગાડી સર્જન કરે છે, પરંતુ એની પ્રેરણાતં મૂલ્ય તે આસપાસનો સમાજ અને સંસારમાં જ પડેલા હોય છે, એને સાહિત્ય સર્જન માટે જીવનનો આધાર તો લેવો જ પડે છે, તેમજ આધાર તો દરેક સર્જક એના સમયનું સંતાન હોય છે, કામ, સાહિત્ય જીવનનું પ્રતિબેદ બને છે જોકે એ પ્રતિવિંબ હરું, પરંતુ એ માત્ર પ્રતિવિંબ જ નથી, એ એક પ્રેરક પરિવહક પણ બને છે, સાહિત્ય જીવન ઘડતર પણ કરે છે, માનવ જગતનાં કાદવ-લીયડને પહાડે છે, જીવન મૂલ્યો પેંચે છે, ઝિંકસાથે છે, જન જીવનનો સાચો પહો પહોડા ઉપરાંત તે જન સનાજને પ્રેરણા આપનારી દિલ્લવાળી પણ બની નહીં છે, કહો કે દરેક સર્જકનો ધર્મ જીવનાભિમુખ બનીને ધ્યેયલક્ષી પ્રગતિપીલ બનવાનો છે, સાહિત્યકારનો ધર્મ જે-તે પુનર્નિ ઝેષ્ણાઓને વાચા આપીને જન જીવનને ઘડવાનો રહ્યો છે, સર્જકો આ રીતે 'ધુમ ધર્મ' વજાવતા રહ્યા છે, સાહિત્ય આ રીતે પ્રતાપી પરિવહક બની રહે છે કહેવું જોઈએ કે જીવનપંથની ગરજ સારે એવું સાહિત્ય સમ્બંધ-સમ્બંધ સર્જવું છે.

મધ્યકાલીન પદ્યસાહિત્યનું વસ્તુ વિષય દ્રષ્ટિએ ગર્ભીકરણ કરીએ તો એમાં આધ્યાત્મિકવિદાનું અનુભવજ્ઞાન નિરૂપતી પદ્યધારાનો એક અવિચ્છિન્ન સ્રોત પ્રાપ્ત થાય છે આ પદ્યધારાને સાહિત્યના ઇતિહાસકારોએ જ્ઞાનમાર્ગી કે જ્ઞાનશ્રેયી કાવ્યધારા તરીકે વહુધા ઓઠાં ખાવી છે, પુસ્તક નહીં પણ પંડનો અનુભવ, આ પરંપરાના કવિઓની માલો મૂકી છે, એથી એમની સાધના પાસ્ત્રસંમત નહિ, પણ અનુભવ સમત સાધના તરીકે ઓઠાં ઘટે, અર્ચાં આ ધારાનો પ્રમુખ કવિ મનાયાં છે, ગુજરાતી સાહિત્યમાં જ નહીં દેવના મધ્યકાલીન સાહિત્યમાં આવાજ અનોખો છે જો કોઈની સાથે વચારક એનાં અવાજ મઠતો આવતો હોય તો તે કવીરના વ્રહ્મલલકાર આવે, મધ્યકાલમાં કવોર અને અર્ચાની જોડી દરમ ધ્યાન રહે છે.

દરેક સર્જકનું અનુભવ જગત એના સર્જનને તાકવું હોય છે, ઘટવું હોય છે, અર્ચાના જીવનમાં બનેલા મર્મદાયક આઘાતો-અનુભવો જેવા કે, જુવાનીમાં પિતાનું મૃત્યુ વહેનું અવસાન, પત્નિનું અવસાન, શીજી પાલેનું મૃત્યુ, ધર્મની માનેડી વહેનની પંકા, ટંકપાઠાનો અરોપ, અને જીવનમાં અન્ય અનુભવોએ અર્ચાના કવનને ઘાટ આપ્યો છે, એ નહીં નીવડવું જોઈએ.

અર્ચાના છપ્પાના નામે પ્રકાશિત છપ્પા પારકીય દ્રષ્ટિ છપ્પા નથી તે ત્યાં છ વરણ વાઠી આપાડ છે, જ્યારે 'અનુભવોર્જી'માં અર્ચાએ પોતે જેને છપ્પા કહ્યા છે તે પારકીય દ્રષ્ટિએ સાચા છપ્પા છે, ગુજરાતમાં અર્ચાની વિષે પ્રસિદ્ધિનું મુદ્દા કરણ છે, તેના છપ્પા અર્ચાના છપ્પામાં શેલ સ્તેલના પ્રેરના પ્રયાગ હોઈ અર્ચા વિમલ પારકીય છપ્પા નથી, આવી છ વરણ વાઠી આપાડ છે, આ પ્રકારની પદ્યપદી આપાડના અર્ચા આપાડના છ વરણના



આર્ચાના છપ્પાના નામે પ્રકાશિત છપ્પા પારકીય દ્રષ્ટિ છપ્પા નથી તે ત્યાં છ વરણ વાઠી આપાડ છે.

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Novel luminescent paper based calix[4]arene chelation enhanced fluorescence- photoinduced electron transfer probe for Mn^{2+} , Cr^{3+} and F^-

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Abstract

A novel structurally simple calix[4]arene attached 1-aminoanthraquinone associated lower rim calix[4]arene conjugate was synthesized and has been used as turn on/off/on fluorescence probe for Mn^{2+} , Cr^{3+} and F^- . This chelation enhanced fluorescence - photoinduced electron transfer (CHEF-PET) based TAAC probe has been applied for its analytical application in real samples such as Mn^{2+} from blood serum, Cr^{3+} and F^- from industrial effluent with 94 - 99 % recovery. The limit of detection of this sensor is found to be 11 nM for Mn^{2+} , 4 nM for Cr^{3+} and 19 nM for F^- with the concentration range of 0-120 nM. Further, we report an easy-to-use, low cost and disposable paper-based sensing device for rapid chemical screening of Mn^{2+} , Cr^{3+} and F^- . The device comprises fluorescent sensing probes embedded into a nitrocellulose matrix where the resonance energy transfer phenomenon seems to be the sensing mechanism. It opens up new opportunities for simple and fast screening in remote settings where sophisticated instrumentation is not always available. The MOPAC-2016 software package has been used to optimize the TAAC using PM7 well established method and calculates the HOMO-LUMO energy band gap for structure TAAC and TAAC with Mn^{2+} , Cr^{3+} and F^- ion based structures.

Key Words: calix[4]arene, PET, CHEF, paper based analytical device, computational study

1. Introduction

The expansion of molecular receptor for revealing of cations, anions and neutral molecules is an entrenched area in contemporary chemistry because of their gigantic analytical application in

Journal Name

ARTICLE

Luminescent behavior of pyrene-allied calix[4]arene for highly pH selective recognition and determination of Zn^{2+} , Hg^{2+} and I^- via CHEF-PET mechanism: Computational experiment and paper based device

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In this article, we have reported for the first time a novel CHEF-PET fluorescence sensor L, based on calix[4]arene containing four pyrene groups as binding sites which is highly selective and sensitive towards Zn^{2+} , Hg^{2+} and I^- . This fluorescence probe has been synthesized, characterized by emission study, UV-vis titration, 1H NMR spectroscopy and ESI-MS investigation. The linear concentration range at pH 7 of L for Zn^{2+} , Hg^{2+} and I^- is 0-135 nM, 0-140 nM and 0-120 nM respectively with the detection limit of 6.43 nM for Zn^{2+} , 2.94 nM for Hg^{2+} and 20.93 nM for I^- . The binding ability was determined through benesi-hildebrand equation which was found to be $7.535 \times 10^8 M^{-1}$ for Zn^{2+} , $9.001 \times 10^8 M^{-1}$ for Hg^{2+} and $8.139 \times 10^8 M^{-1}$ for I^- . Further, we report an easy-to-use, low cost and disposable paper-based sensing device for rapid chemical screening of Zn^{2+} , Hg^{2+} and I^- . The device comprises luminescent sensing probes embedded into a cellulose matrix where the resonance energy transfer phenomenon seems to be the sensing mechanism. It opens up new opportunities for simple and fast screening in remote settings where sophisticated instrumentation is not always available. The MOPAC-2016 software package has been used to optimize the L using PM7 well established method and calculates the HOMO-LUMO energy band gap for structure L and L with Zn^{2+} , Hg^{2+} and I^- ion based structures. The molecular docking study has been carried out using HEX software.

1. Introduction

At present, the scientific community is taking much interest in a large and mature family of supramolecular chemistry having cyclodextrins, cucurbiturils, cryptands, crownethers and calixarenes as family members. Among them, calixarenes¹, a methylene bridged cyclic oligomer of phenol, has drawn a great attention due to its flexible arrangement. There are variety of calixarene derivatives but calix[4]arene has been found to be outstanding platform as the host molecule because it can provide the space adequate in the realm of host-guest chemistry and can be excellent and versatile ionophore. Calix[4]arene can be modified by functionalizing at upper and lower rim of it which turns it into an effective host compound for a wide variety of guest molecules such as cations, anions and neutral molecules with well-defined binding core²⁻⁵.

Considerable efforts have been done on exploring efficient and economic artificial molecular receptor for targeted cations, anions and neutral molecules recognition and sensing through

direct visual observation. To sense an ion, a chemosensor should be more selective, rapid and cost-effective. Fluorometry technique fulfills all these criteria and a chemosensor based on fluorescence acts as an attractive host molecule. The calix[4]arene based fluorescent chemosensor possesses mainly two parts i.e. an ionophore which is responsible for guest ion binding and a fluorophore responsible for signal transduction. The mechanism of fluorescence involved in calix[4]arene system is mainly photoinduced electron transfer (PET)⁶⁻⁸, fluorescence resonance energy transfer (FRET)⁹⁻¹¹, photoinduced charge transfer (PCT)¹²⁻¹³, metal-ligand charge transfer (MLCT)¹⁴, proton transfer¹⁵, formation of an excimer¹⁶ and chelation-enhanced fluorescence (CHEF)¹⁷ for the molecular recognition. Among various transition metals, Zn^{2+} is the second most abundant transition metal ion in human body after iron. It is very essential element in many biological processes such as protein synthesis, neural transduction, gene transcription, immune functions, brain function and pathology and mammalian reproduction. Failure to maintain zinc homeostasis causes alzheimer's disease, epilepsy, low blood sugar, ischemic stroke and infantile diarrhea¹⁸⁻²⁰. The detection of heavy metals is receiving ever-increasing attention by researchers nowadays. Mercury is considered as one of the most notorious toxic metals to environment which causes severe neurotoxic, genotoxic and immunotoxin effects and thus poses severe risk

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Single-step fluorescence recognition of As^{3+} , Nd^{3+} and Br^- using pyrene-linked calix[4]arene: application to real samples, computational modelling and paper-based device†

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A new fluorescence sensor, namely, TDPC, which is composed of a pyrene group connected to calix[4]arene as the fluorogenic unit, has been synthesized, characterized and analyzed with regard to its selective sensing ability for As^{3+} (0–150 nM), Nd^{3+} and Br^- (0–120 nM), with detection limits of 11.53 nM, 0.65 nM and 11.25 nM, respectively. The binding constant (K_b) was found to be $7.842 \times 10^8 \text{ M}^{-1}$ for As^{3+} , $6.877 \times 10^8 \text{ M}^{-1}$ for Nd^{3+} and $6.311 \times 10^8 \text{ M}^{-1}$ for Br^- . Furthermore, we report an easy-to-use, low-cost and disposable paper-based sensing device for rapid chemical screening of As^{3+} , Nd^{3+} and Br^- . The device comprises a luminescent sensing probe embedded in a cellulose matrix in which resonance energy transfer seems to be the sensing mechanism. It opens up new opportunities for simple and fast screening in remote settings where sophisticated instrumentation is not always available. The MOPAC2016 software package was used to optimize TDPC using the well-established PM7 method, and the HOMO–LUMO energy band gap was calculated for TDPC and TDPC with structures based on As^{3+} , Nd^{3+} and Br^- ions. To determine the influence of different metal ions on TDPC, a molecular docking study was carried out using HEX software. Furthermore, to assess its analytical applicability, the prepared sensor was successfully used for the analysis of two different real samples (an industrial soil sample for Nd^{3+} and industrial waste water for As^{3+} and Br^-) to validate the proposed method, with recoveries of ions of 95–99%.

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1. Introduction

The design and development of a reliable and economic molecular receptor for the detection of cations, anions and neutral molecules by direct visual observation is an intriguing feature of modern science. Because of the increasing use of toxic metals in numerous fields, it is essential to manufacture a sensor that can detect toxic metals. As arsenic compounds are known to be toxic to humans and animals, they have proved to be an issue of global concern. Although arsenic compounds are present in different chemical forms in groundwater, such as arsenite (AsO_2^- , As^{3+}) and arsenate (HASO_4^{2-} , As^{5+}), As^{3+} is 50 times more toxic than any other form of arsenic because of

its interaction with enzymes in human metabolism. Arsenic causes several major health hazards including dermal changes, respiratory, cardiovascular, gastrointestinal and carcinogenic effects, *etc.* and may even cause liver, bladder and lung cancer. West Bengal (India) and Bangladesh, together with 20 other nations worldwide, are affected by arsenic contamination, mostly in drinking water, which is spreading rapidly through groundwater.^{1–3} Although neodymium is the second most abundant rare earth element, its content in the human body is quite small, and it can adversely affect certain body parts. In nature, it is found in minerals such as monazite and bastnasite. However, although neodymium compounds are less toxic, neodymium dust and salts are irritating to the eyes and can affect the liver and cause lung embolisms. In addition, neodymium is used in the development of permanent magnets that are used in microphones, professional loudspeakers, headphones and computer hard disks. It is used for coloring glass to make goggles for welders and glassblowers. Furthermore, neodymium acts as an anticoagulant, especially when given intravenously.⁴ In the same way as cations, anions need to be detected rapidly using chemosensors owing to their importance in the fields of chemical, biological and environmental sciences.

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1. Introduction

The design and development of a reliable and economic molecular receptor for the detection of cations, anions and neutral molecules by direct visual observation is an intriguing feature of modern science. Because of the increasing use of toxic metals in numerous fields, it is essential to manufacture a sensor that can detect toxic metals. As arsenic compounds are known to be toxic to humans and animals, they have proved to be an issue of global concern. Although arsenic compounds are present in different chemical forms in groundwater, such as arsenite (AsO_2^- , As^{3+}) and arsenate (HASO_4^{2-} , As^{5+}), As^{3+} is 50 times more toxic than any other form of arsenic because of

its interaction with enzymes in human metabolism. Arsenic causes several major health hazards including dermal changes, respiratory, cardiovascular, gastrointestinal and carcinogenic effects, *etc.* and may even cause liver, bladder and lung cancer. West Bengal (India) and Bangladesh, together with 20 other nations worldwide, are affected by arsenic contamination, mostly in drinking water, which is spreading rapidly through groundwater.^{1–3} Although neodymium is the second most abundant rare earth element, its content in the human body is quite small, and it can adversely affect certain body parts. In nature, it is found in minerals such as monazite and bastnasite. However, although neodymium compounds are less toxic, neodymium dust and salts are irritating to the eyes and can affect the liver and cause lung embolisms. In addition, neodymium is used in the development of permanent magnets that are used in microphones, professional loudspeakers, headphones and computer hard disks. It is used for coloring glass to make goggles for welders and glassblowers. Furthermore, neodymium acts as an anticoagulant, especially when given intravenously.⁴ In the same way as cations, anions need to be detected rapidly using chemosensors owing to their importance in the fields of chemical, biological and environmental sciences.

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Novel luminescent paper based calix[4]arene chelation enhanced fluorescence- photoinduced electron transfer probe for Mn^{2+} , Cr^{3+} and F^-

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Abstract

A novel structurally simple calix[4]arene attached 1-aminoanthraquinone associated lower rim calix[4]arene conjugate was synthesized and has been used as turn on/off/on fluorescence probe for Mn^{2+} , Cr^{3+} and F^- . This chelation enhanced fluorescence - photoinduced electron transfer (CHEF-PET) based TAAC probe has been applied for its analytical application in real samples such as Mn^{2+} from blood serum, Cr^{3+} and F^- from industrial effluent with 94 - 99 % recovery. The limit of detection of this sensor is found to be 11 nM for Mn^{2+} , 4 nM for Cr^{3+} and 19 nM for F^- with the concentration range of 0-120 nM. Further, we report an easy-to-use, low cost and disposable paper-based sensing device for rapid chemical screening of Mn^{2+} , Cr^{3+} and F^- . The device comprises fluorescent sensing probes embedded into a nitrocellulose matrix where the resonance energy transfer phenomenon seems to be the sensing mechanism. It opens up new opportunities for simple and fast screening in remote settings where sophisticated instrumentation is not always available. The MOPAC-2016 software package has been used to optimize the TAAC using PM7 well established method and calculates the HOMO-LUMO energy band gap for structure TAAC and TAAC with Mn^{2+} , Cr^{3+} and F^- ion based structures.

Key Words: calix[4]arene, PET, CHEF, paper based analytical device, computational study

1. Introduction

The expansion of molecular receptor for revealing of cations, anions and neutral molecules is an entrenched area in contemporary chemistry because of their gigantic analytical application in

Literary Aesthetics and Ethnicity in Fictions of Bharati Mukherjee

Hardik S. Bhatt
Research Scholar

Abstract

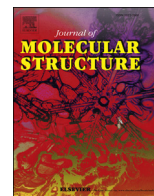
The term *ethnicity* has its own values and importance in literature and society. It is debated and used with different dimensions. It is also used in a large scale in fictions in English literature. United States of America is a continent where authors used ethnicity in their works. One of them, is Bharti Mukherjee, an Indian origin who also wrote on ethnic issues through her fictions. This article intends to study literary aesthetics and ethnicity in context to selected fictions of Bharati Mukherjee. *Jasmine*, *The Tiger's Daughter*, *Wife* and *Darkness* are mainly studied with a view to assess the level of literary aesthetics and ethnicity for the purpose of this study. The method of study is critical literary analysis of aspects concern to the selected fictions. To conclude, the power conflict operating between different ethnic groups, change of attitudes towards ethnicities, rhetoric of ethnicity, self-repositioning, travel as a metaphor, autobiographical elements, deterritorialization, realism, violence and aesthetics of the ethnic female literary tradition are evaluated in her fictions.

Key Words: Literary aesthetics, ethnicity, self-repositioning, deterritorialization, realism.

Introduction

The critical theorists agree with connection between literature and aesthetics. These two disciplines are some times observed as indirectly associated with each other in literature. It is also argued that aesthetic of literature one must avoid emphasizing only incentre textual properties such as figurative language, imagery and so forth. The surface meaning should also not be given priority and, finally, the debate about literary aesthetics should never be reduced to mere perspectives of plot and character. These areas can be congenial to the literary critics but one has to admit that there exists an overlapping of critical views over aesthetic ones. One possible connection between literature and aesthetics is when literary works are treated as objects of aesthetic appraisal and such appraisal is promoted through them. This idea helps to resist the reduction of literature to something else such as ethics or pure philosophy. But if literature rests within the limits of the idea of literature as art and adheres to the conception of literary works as having distinctive characteristics in contrast with other art works, then an aesthetics of literature is possible.

The word 'ethnicity' is derived from the older adjective and noun form 'ethnic,' which in turn *can* be traced to the Greek word "Ethnikos". In the Greek Bible, ethnikos refers to non-Israelites orgentiles. In the Christian era (after the fourteenth century) 'ethnic' came to be defined as "pagan, heathen or non-Christian." Only in the mid - nineteenth century did the more familiar meaning of ethnic as 'peculiar to a



Solvent effect on neutral Co (II) complexes of paeonol derivative –qualitative and quantitative studies from energy frame work and Hirshfeld surface analysis

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ABSTRACT

Co (II) Complex of 1-(2-hydroxy-4-methoxyphenyl)ethanone has been synthesized and crystallized as solvates. The crystallization solvents used are β -picoline and pyridine. However, from β -picoline the metal complex crystallized without solvent as $\text{Co}[(\text{C}_9\text{H}_9\text{O}_3)]_2(\text{A})$ in monoclinic space group $\text{P}2_1/c$ with lattice parameters $a = 6.576(1)\text{\AA}$, $b = 11.6897(18)\text{\AA}$, $c = 10.8788(17)\text{\AA}$, $\beta = 97.124(2)^\circ$ and $Z = 4$. From pyridine, complex crystallizes with two solvent molecules as $\text{Co}[(\text{C}_9\text{H}_9\text{O}_3)_2(\text{C}_5\text{H}_5\text{N})_2](\text{B})$ in the monoclinic space group $\text{C}2/c$ with $Z = 4$ and lattice parameters as $a = 17.698(2)\text{\AA}$, $b = 14.4312(16)\text{\AA}$, $c = 10.8803(12)\text{\AA}$, and $\beta = 116.94(2)^\circ$. In both unsolvated (A) and solvated (B) complexes Co occupies the special position (000). In solvated complex (B) the nitrogen (N_1, N_2) and carbon ($\text{C}_{12}, \text{C}_{15}$) of both the solvent pyridines lie on symmetry axis along with Co thereby generating other half of both the pyridines symmetrically. In unsolvated complex (A), molecular geometry around Co is distorted tetrahedral with Co coordinating to all four oxygens of bidentate ligand (Paeonol) forming a pseudo square planer configuration where as in the solvated complex (B) Co forms a pseudo square planer configuration along with nitrogens of the solvent pyridines occupying apexial position to complete the octahedral sphere. Similarities and differences in the molecular packing of unsolvated and solvated Co complex are established through the investigation of qualitative and quantitative contribution of intermolecular interactions using Hirshfeld surface and energy frame work analysis. The quantitative contributions of each intermolecular interaction towards molecular stability reveals comparatively higher value of energy (negative) for the solvated complex (B) than those of unsolvated complex (A) highlighting the significant contributions of solvent molecule in molecular stability.

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1. Introduction

The presence of solvent in the lattice drastically influences the molecular packing. Different crystallographic environments enforce the molecule to crystallize in different space group leading to different packing mode. Paeonol, a herbal medicine found a place in medicine in Asian countries since ancient times, due to its analgesic, anti-pyretic, anti-inflammatory, antihypertensive and antibacterial properties and also used in the treatment of arthritis and collagen-induced human blood platelet aggregation in a dose-

dependent manner [1]. The use of transition metal complexes of organic ligand molecule as promising therapeutic compounds has become more and more pronounced due to the wider and diversified biological spectrum of the metal complex compare to free ligand [2–4]. In this paper, we focus to the geometry of Co complex of a novel Paeonol derivative in two different unsolvated and solvated crystallographic environments. In unsolvated complex, metal Co observed to form a distorted tetrahedral geometry whereas the presence of solvent in the lattice of solvated complex, directly participating in coordination with metal Co, thereby compelling metal Co to form a stronger octahedral coordination sphere resulting in comparatively stronger packing of solvated complex than the unsolvated one. Both the structures are worked out by X-Ray crystallography. Differences in the molecular structure in terms

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Structural analysis and charge transfer properties of a novel pyrazoline derivative: potential energy scan, XRD, DFT and molecular docking studies

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Abstract: The title molecule, 1-[3-(6-bezyloxy-2-hydroxy-4-methyl-cyclohexa-2, 4-dienyl)-5-phenyl-4, 5-dihydro-pyrazol-1-yl]-propan-1-one was synthesized and characterized by FTIR, ¹H NMR, ¹³C NMR and single-crystal X-ray diffraction technique. The optimized geometry is calculated using density functional theory (DFT). A good linear correlation was observed between experimental data and theoretical structural parameters (DFT). Predicted vibrational frequencies were assigned and compared with the experimental IR spectra and they support each other. To determine conformational flexibility and hence to predict the stable geometry, potential energy scan of the molecule was obtained with respect to selected degree of freedom about O18–C19 torsional angle varied from – 180° to + 180° in steps 20°. NBO analysis was carried out for the molecule to check possible hydrogen bond interactions to correlate with those of X-ray data. Molecular stability is mainly due to weak but collective contributions of significant nonconventional C–H... π , π – π and C–H...O-type hydrogen bond interactions and those interactions also quantified by Hirshfeld surface analysis. The thermal stability of the compound was determined with the aid of thermo-gravimetric analysis and differential thermal analysis. The molecular docking study was carried out against the title molecule with 5DBM protein receptor active sites.

Keywords: Pyrazol; Single-crystal XRD; DFT; Conformational analysis; Hirshfeld surface; Molecular docking

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1. Introduction

Pyrazoline derivatives, prominent nitrogen containing heterocyclic compound, found to possess antidepressant [1], antioxidant [2], anti-inflammatory [3], anticonvulsant [4], antimicrobial [5], antiviral [6], monoamine oxidase (MAO-A and MAO-B) inhibitors [7] and anticancer [8] activities. Current literature reveals that some of aryl-pyrazoline possess non-nucleoside HIV-1 reverse transcriptase inhibitory activity and used in formation of pesticide products, intermediates as industrial products and in the development of drug enhancement [9–17]. Pyrazoline derivatives with a phenyl group possess good film-forming

properties and exhibit excellent characteristics of blue photoluminescence, fluorescence and electroluminescence properties. Looking toward the significance of pyrazoline derivatives and as a part of our ongoing research work on X-ray crystallographic investigations and quantum chemical computational studies and their theoretical calculations [18–22] prompted us to synthesize a novel significant pyrazoline derivative, 1-[3-(6-Bezyloxy-2-hydroxy-4-methyl-cyclohexa-2,4-dienyl)-5-phenyl-4, 5-dihydro-pyrazol-1-yl]-propan-1-one and characterized spectroscopically using IR, NMR technique and by single-crystal X-ray diffraction study.

Literature survey revealed that the degree of accuracy of DFT methods is comparatively higher in reproducing the experimental values in terms of geometry, dipole moment, vibrational frequency, etc. [23–29], than the other methods. The present study aims to investigate the optimized

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Novel tritopic calix[4]arene CHEF-PET fluorescence paper based probe for La^{3+} , Cu^{2+} , and Br^- : Its computational investigation and application to real samples

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ABSTRACT

A calix[4]arene conjugate bearing 1-aminoanthraquinone with amide linkage (L) has been synthesized and characterized, and its ability to recognize three most important essential ions, viz., La^{3+} , Cu^{2+} and Br^- has been addressed by fluorescence technique. L shows a minimum detection limit 0.88 nM for La^{3+} , 0.19 nM for Cu^{2+} and 0.15 nM for Br^- . The sensor based on (L) exhibits the working concentration range 5–120 nM for (La^{3+} , Cu^{2+} and Br^-) with their binding constant(Ks) $10.21 \times 10^8 \text{ M}^{-1}(\text{La}^{3+})$, $7.04 \times 10^8 \text{ M}^{-1}(\text{Cu}^{2+})$, $7.96 \times 10^8 \text{ M}^{-1}(\text{Br}^-)$. Further, we report an easy-to-use, low cost and disposable paper-based sensing device for rapid chemical screening of La^{3+} , Cu^{2+} and Br^- . The device comprises luminescent sensing probe embedded into a nitrocellulose matrix where the resonance energy transfer phenomenon seems to be the sensing mechanism. The MOPAC-2016 software package has been used to optimize the L using PM7 popular method, analysed heat of formation which is $-262.5572 \text{ kcal/mole}$ and also determined the HOMO-LUMO energy band gap for L and composite of La^{3+} , Cu^{2+} and Br^- with L. Furthermore, to assess its analytical applicability the prepared sensor was successfully applied for determination of three different real samples (soil samples for La^{3+} , blood serum for Cu^{2+} and industrial water for Br^-) for validation of proposed method by recovery of ions with 94–99%.

1. Introduction

The recognition of cations, anions and molecular species has become the exciting areas of modern-day research significant to the receptor strategy and development. Among all lanthanoids metals, lanthanide has characteristic photo physical and electronic properties which, coupled with the inadequacy of these rare earths in living systems, can afford new insights in the biological and therapeutic fields [1,2]. Transition metal ions play a very important role in many fundamental biological processes. Copper is the third most abundant transition metal of the human body which assist as a cofactor by taking an active part in a large range of enzymes and its importance may be recognized to its redox nature [3–7]. Anions play many important roles in biological systems, the environment and in industrial applications. The biological essentiality of bromide for basement membranes assembly and tissue development have been recently revealed [8]. Moreover, several studies have been demonstrated its low degree of toxicity and reduced toxicological concern in nutrition [9]. However, it

has also been reported in the literature that bromide, which is ubiquitously found in water, is a key matrix component in oxidative water treatment processes as it can promote the formation of undesired compounds [10]. Numerous methods have been established for the detection of La^{3+} , Cu^{2+} and Br^- individually but none of these techniques are amenable to real-time analysis, also they are expensive in terms of reagent consumption, cost of instrumentation, and time-consuming procedures with high detection limits. In contrast, fluorescent chemical sensors provides real-time analysis, no expensive reagents, low cost of instrumentation and accessibility. The mechanism of fluorescent chemical sensor depends upon binding with molecular ions which can be either fluorescence quenching or fluorescence enhancement. Designing of molecular receptor is a crucial aspect of this technique. The more number of aromatic fluorophores in the locality, the more they come adjacent enough to create van der waals contact with Π - Π stacking. This route of recognition comprises an ion sensing unit (ionophore) which is allied with a fluorophore whose photophysical properties are disturbed during the recognition process, producing

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Luminescent behavior of pyrene-allied calix[4]arene for highly pH selective recognition and determination of Zn^{2+} , Hg^{2+} and I^- via CHEF-PET mechanism: Computational experiment and paper based device

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In this article, we have reported for the first time a novel CHEF-PET fluorescence sensor L, based on calix[4]arene containing four pyrene groups as binding sites which is highly selective and sensitive towards Zn^{2+} , Hg^{2+} and I^- . This fluorescence probe has been synthesized, characterized by emission study, UV-vis titration, 1H NMR spectroscopy and ESI-MS investigation. The linear concentration range at pH 7 of L for Zn^{2+} , Hg^{2+} and I^- is 0-135 nM, 0-140 nM and 0-120 nM respectively with the detection limit of 6.43 nM for Zn^{2+} , 2.94 nM for Hg^{2+} and 20.93 nM for I^- . The binding ability was determined through benesi-hildebrand equation which was found to be $7.535 \times 10^8 M^{-1}$ for Zn^{2+} , $9.001 \times 10^8 M^{-1}$ for Hg^{2+} and $8.139 \times 10^8 M^{-1}$ for I^- . Further, we report an easy-to-use, low cost and disposable paper-based sensing device for rapid chemical screening of Zn^{2+} , Hg^{2+} and I^- . The device comprises luminescent sensing probes embedded into a cellulose matrix where the resonance energy transfer phenomenon seems to be the sensing mechanism. It opens up new opportunities for simple and fast screening in remote settings where sophisticated instrumentation is not always available. The MOPAC-2016 software package has been used to optimize the L using PM7 well established method and calculates the HOMO-LUMO energy band gap for structure L and L with Zn^{2+} , Hg^{2+} and I^- ion based structures. The molecular docking study has been carried out using HEX software.

1. Introduction

At present, the scientific community is taking much interest in a large and mature family of supramolecular chemistry having cyclodextrins, cucurbiturils, cryptands, crownethers and calixarenes as family members. Among them, calixarenes¹, a methylene bridged cyclic oligomer of phenol, has drawn a great attention due to its flexible arrangement. There are variety of calixarene derivatives but calix[4]arene has been found to be outstanding platform as the host molecule because it can provide the space adequate in the realm of host-guest chemistry and can be excellent and versatile ionophore. Calix[4]arene can be modified by functionalizing at upper and lower rim of it which turns it into an effective host compound for a wide variety of guest molecules such as cations, anions and neutral molecules with well-defined binding core²⁻⁵.

Considerable efforts have been done on exploring efficient and economic artificial molecular receptor for targeted cations, anions and neutral molecules recognition and sensing through

direct visual observation. To sense an ion, a chemosensor should be more selective, rapid and cost-effective. Fluorometry technique fulfills all these criteria and a chemosensor based on fluorescence acts as an attractive host molecule. The calix[4]arene based fluorescent chemosensor possesses mainly two parts i.e. an ionophore which is responsible for guest ion binding and a fluorophore responsible for signal transduction. The mechanism of fluorescence involved in calix[4]arene system is mainly photoinduced electron transfer (PET)⁶⁻⁸, fluorescence resonance energy transfer (FRET)⁹⁻¹¹, photoinduced charge transfer (PCT)¹²⁻¹³, metal-ligand charge transfer (MLCT)¹⁴, proton transfer¹⁵, formation of an excimer¹⁶ and chelation-enhanced fluorescence (CHEF)¹⁷ for the molecular recognition. Among various transition metals, Zn^{2+} is the second most abundant transition metal ion in human body after iron. It is very essential element in many biological processes such as protein synthesis, neural transduction, gene transcription, immune functions, brain function and pathology and mammalian reproduction. Failure to maintain zinc homeostasis causes alzheimer's disease, epilepsy, low blood sugar, ischemic stroke and infantile diarrhea¹⁸⁻²⁰. The detection of heavy metals is receiving ever-increasing attention by researchers nowadays. Mercury is considered as one of the most notorious toxic metals to environment which causes severe neurotoxic, genotoxic and immunotoxin effects and thus poses severe risk

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Novel tritopic calix[4]arene CHEF-PET fluorescence paper based probe for La^{3+} , Cu^{2+} , and Br^- : Its computational investigation and application to real samples

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has also been reported in the literature that bromide, which is ubiquitously found in water, is a key matrix component in oxidative water treatment processes as it can promote the formation of undesired compounds [10]. Numerous methods have been established for the detection of La^{3+} , Cu^{2+} and Br^- individually but none of these techniques are amenable to real-time analysis, also they are expensive in terms of reagent consumption, cost of instrumentation, and time-consuming procedures with high detection limits. In contrast, fluorescent chemical sensors provides real-time analysis, no expensive reagents, low cost of instrumentation and accessibility. The mechanism of fluorescent chemical sensor depends upon binding with molecular ions which can be either fluorescence quenching or fluorescence enhancement. Designing of molecular receptor is a crucial aspect of this technique. The more number of aromatic fluorophores in the locality, the more they come adjacent enough to create van der waals contact with Π - Π stacking. This route of recognition comprises an ion sensing unit (ionophore) which is allied with a fluorophore whose photophysical properties are disturbed during the recognition process, producing

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Financial Analysis of Nadiad Municipality-A Correlation Assessment of Income and Expenditure

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Abstract

Local self-Government is an integral and inalienable part of democratic government. It completes the three-tier system of a country's federal governmental structure. Which includes, sovereign national government, quasi-sovereign state governments, and intra-sovereign local governments. All three are working as partners in the great enterprise of securing a decent level of existence for the entire nation's citizen. Local government, created either by a national or state enactment, acts as an agent of development and provides certain services of immense importance to the people living under its jurisdiction, with a strong emphasis on popular initiative and participation. The importance of the subject of local finance follows logically and essentially from the growing importance of government activity in the modern world. Finance may be described as the lubricant for the smooth functioning of the local government machinery. The study is an assessment of income and expenditure of the Nadiad Municipality in Gujarat state, to suggest suitable strategies to sustain and improve its financial management. The performance is measured through a relative comparison of the various components of income and expenditure in terms of the logarithm. All the major heads of income and expenditure have been analyzed through descriptive and correlation analysis. Total Revenue is correlated with Total Expenditure positively and significantly. Surprisingly Loan is not correlated with any of the components of Expenditure and Revenue.

Key Word: Urban Finance, Nadiad Municipality, Total Revenue, Total Expenditure

JEL Code: H7, H72

Introduction

Local self-Government is an integral and inalienable part of democratic government. It completes the three-tier system of a country's federal governmental structure. Which includes, sovereign national government, quasi-sovereign state governments, and intra-sovereign local governments. All three working as partners in the great enterprise of securing a decent level of existence for the entire nation's citizen. Local government, created either by a national or state enactment, acts as an agent of development and provides certain services of immense importance to the people living under its jurisdiction, with a strong emphasis on popular initiative and participation.

India is experiencing an accelerated growth rate of urbanization. The urban population has been growing at a rate of 30-40 % per decade since 1961. The urban population is increasing from a stable decadal growth rate of 10% to the total population at the beginning of the 20th Century to the current decadal growth rate of around 30%.³

Growth of urbanization leads to the need for better communication, migration, floating population and mushrooming of slums. Thus, there is a need to provide housing, health, water supply, sanitation, and education. Urbanization is a job-creating process and contributes to the economy and overall growth of the country. The urban share of GDP was estimated at 62-63 per cent in 2009-10 by the 12th Five Year Plan. Also, increased demand for urban infrastructure is related to growing urbanization.

The importance of the subject of local finance follows logically and essentially from the growing importance of government activity in the modern world. Finance may be described as the lubricant for the smooth functioning of the local government machinery. The relation between local functions and local finance are inseparably intertwined. They are concurrent to each other, and one exists for the other. Local functions cannot be performed without local finance, and without functions, the need for finance does not arise.⁴ Local finance, which is a branch of public finance, deals with the income and expenditure of the local government and with the adjustment of one to the other. Local finance deals with the process and principles of raising and spending money essential for the support of the local government in satisfying the collective wants of the people under its jurisdiction.

The study is an assessment of income and expenditure of the Nadiad Municipality in Gujarat state, to suggest suitable strategies to sustain and improve their financial management.

‘Sudhrai’ was established in Nadiad in 1866. Much of the development has been observed after the establishment of Sudhrai in this city. Nadiad Sudhrai was replaced by ‘Municipality’ on 1st April 1883.

³ Census of India (1991) gives a distilled picture of the growth of cities, further details and analysis on urbanization patterns and trends can be found in Kundu (2006).

⁴ Bardoli U. N., Local Finance in Assam, Dutta Branch & Co., Gauhati, 1972 p.1

Afterwards, this Municipality has been growing exponentially. The first survey of this town was completed during 1820-'26.

Nadiad, is located in Gujarat state, in India. It is not a city, but it is the administrative centre of Kheda district. The city has roots that go to the glorious past and stands as the epitome of well-administered cities in Gujarat. The city is also alternatively known as Sakshar Bhumi or the Land of the Educated. The town has historical importance in terms of freedom struggle, has an impressive literary and scholarly history and is an ancient place that has been ruled by various rulers.

Review of Literature

There have been very few attempts made to analyze the finances of local bodies. Jha (2002) has examined it in the context of rural local bodies, while Mathur and Thakur (2004) have done it in the urban context. There were more other isolated attempts by Pethe and Lalvani (2006), Bagchi and Chhtopadhyay (2004), and are limited in their scope and approach for evaluating local governments.

A good amount of research is available so far as municipal finances of Gujarat are concerned. They distinguished on the basis and of the methodology used, the time period considered and the regions taken for the study. Important researches are from Joshi (1994), Parekh (2004), Oddedara (2005) and Joshi (1999) specifically for Gujarat Municipalities. These are the studies mainly deals with the income and expenditure analysis of the local bodies.

Data and Methodology

This paper is based on published secondary data and research materials, budgets of relevant urban governments, various reports, and discussion with concerned people in the Nadiad municipality.

For the present study, the detailed absolute data for the last twenty-one year relating to the financial condition of the Nadiad Municipality (NMC) is considered. The data on revenue and expenditure for the 21 years between 1996-97 and 2016-17 was obtained from the various annual accounts and annual budgets the municipality. Some information was not available with their sources and was obtained through discussions with officers of the account section and other departments of the NMC. To find the accuracy of data and association among the various components of Revenue and Expenditure of NMC, descriptive statistics and correlation analysis are used.

Limitations:

The major limitation of the study is that, all the statistical information required for intensive research on local finance which is not readily available. So, the study cannot be extended in many directions. This study is a case study for the finances of the Nadiad Municipality, so it is not a General study. The other limitation of the study is that it accounts for only twenty-one years of data. The analysis has been done keeping in mind the form in which data are available. All this may be considered as limitations of the study.

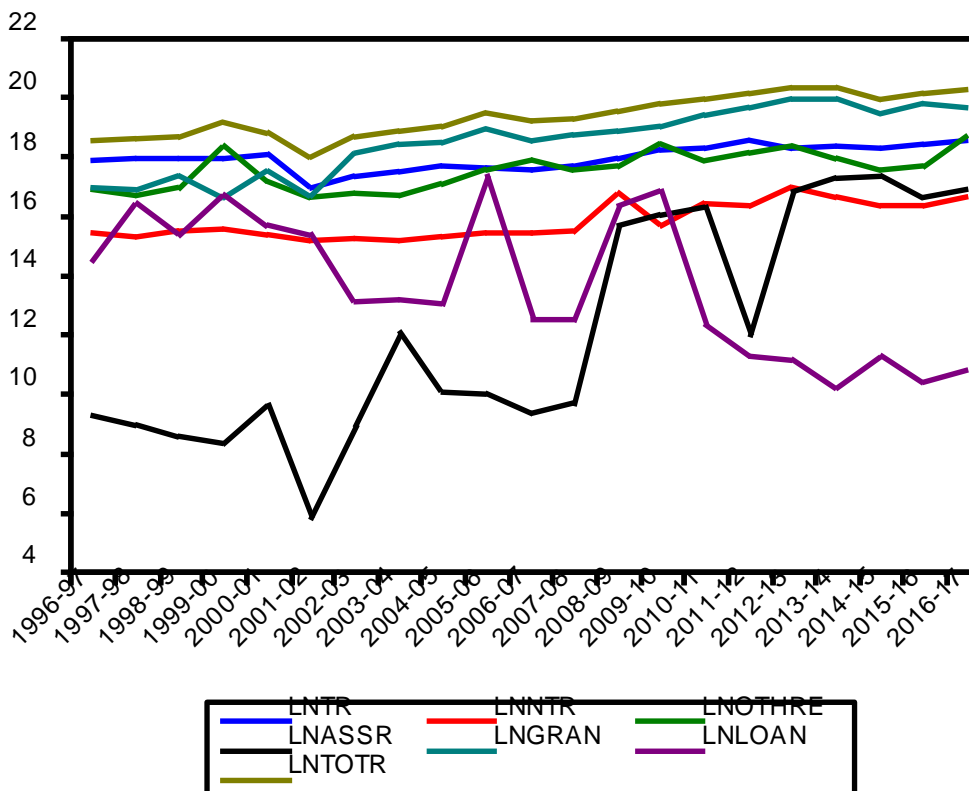
Table-1**Description of the Abbreviated Terms used in the Analysis**

Sr. No.	Variable	Description
1.	LNTR	Total Revenue of Municipality
2.	LNNT	Non-Tax Revenue of Municipality
3.	LNOTHRE	Other Receipts of Municipality
4.	LANSSR	Assigned Revenue of Municipality
5.	LNGRAN	Grant in Aid Received by Municipality
6.	LALOAN	Loan Taken by Municipality
7.	LNTOTR	Total Tax Revenue of Municipality
8.	LNEST	Establishment Expenditure of Municipality
9.	LNCA	Capital Expenditure of Municipality
10.	LNADM	Administrative Expenditure of Municipality
11.	LNOM	Operational and Maintenance Expenditure of Municipality
12.	LNOTHER	Other Expenditure of Municipality
13.	LNTOTEX	Total Expenditure of Municipality

Table-2**Descriptive Statistics of Total Revenue and Its Components (Log Value)**

	LNTR	LNNT	LNOTHRE	LANSSR	LNGRAN	LALOAN	LNTOTR
Mean	17.96032	15.84943	17.56890	12.18784	18.52732	13.65167	19.37448
Median	17.96993	15.54006	17.59132	10.05750	18.76683	13.14326	19.28637
Maximum	18.58502	16.94043	18.78153	17.38844	19.97096	17.38092	20.36067
Minimum	16.95830	15.16526	16.64173	5.831882	16.60884	10.19839	18.01718
Std. Dev.	0.417286	0.603959	0.647731	3.799921	1.116209	2.373362	0.688490
Skewness	-0.518208	0.516303	0.125267	0.199402	-0.413741	0.101648	-0.101269
Kurtosis	2.758439	1.626059	1.879772	1.495044	1.867258	1.592228	1.897202
Jarque-Bera	0.990945	2.584741	1.152969	2.120945	1.721852	1.770259	1.100037
Probability	0.609283	0.274619	0.561870	0.346292	0.422770	0.412661	0.576939
Sum	377.1667	332.8381	368.9468	255.9447	389.0737	286.6851	406.8641
Sum Sq. Dev.	3.482552	7.295331	8.391121	288.7880	24.91846	112.6570	9.480368
Observations	21	21	21	21	21	21	21

Graph – 1
Line Graph of Total Revenue and Its Components



The above table no.2 provides a descriptive analysis of the Total Revenue and Its components in log value for the year 1996-97 to 2016-17 of Nadiad Municipality (NMC). It accounts for Mean, Median, Standard Deviation and Skewness for various components of Revenue of NMC. The table also provides information on the normality of the data. The value of Jarque-Bera statistics showed acceptance of the null hypothesis- the data are normally distributed. The graph of all the components of Revenue depicts the variability of various components. It is evident from the graph that the Grant-in-Aid received by the NMC accounts for the highest share in the total revenue.

Table -3

Correlation and Covariance Analysis

Covariance Analysis: Ordinary							
Correlation							
Probability	LNTR	LNTR	LNOTHRE	LNASSR	LNGRAN	LNLOAN	LNTOTR
LNTR	1.000000						

LNTR	0.763986**	1.000000					
	0.0001	-----					
LNOTHRE	0.686053**	0.692574**	1.000000				
	0.0006	0.0005	-----				
LNASSR	0.739244**	0.857512**	0.623979**	1.000000			
	0.0001	0.0000	0.0025	-----			
LNGRAN	0.602897**	0.760139**	0.603410**	0.840433**	1.000000		
	0.0038	0.0001	0.0038	0.0000	-----		
LNLOAN	-0.435807*	-0.556369**	-0.303913	-0.544000*	-0.697480*	1.000000	
	0.0483	0.0088	0.1805	0.0108	0.0004	-----	
LNTOTR	0.811742**	0.863500**	0.817606**	0.880020**	0.915513**	-0.604227**	1.000000
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0037	-----

(** and * indicate significant level at 1 % and 5 % respectively)

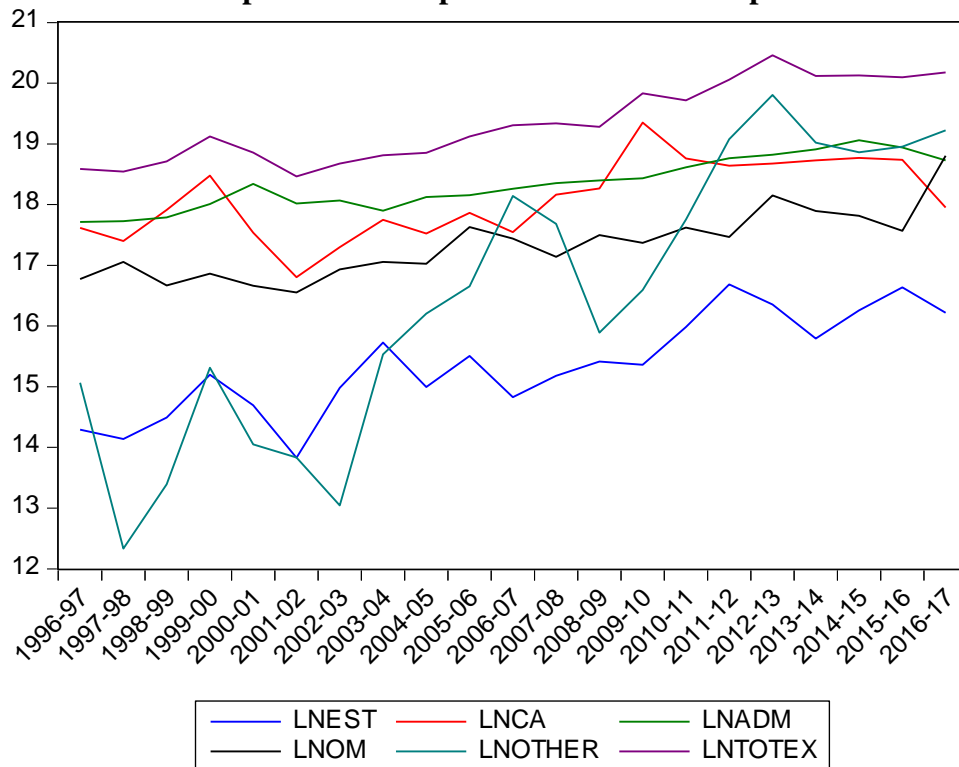
The table number 3 is on the Correlation analysis of various components of revenue. It is revealed from the table that Grant in Aid and Assigned Revenue are correlated, and it is statistically significant at a 5 % significant level. Total Revenue is significantly and positively correlated with Assigned Revenue, Grant in Aid and Tax Revenue. Nearly 96 % variation in the Total Revenue has been due to the Grant-in-Aid component of NMC. Tax Revenue is also significantly and positively correlated with Grant in Aid component of Revenue of NMC.

Table- 4

Descriptive Statistics of Total Expenditure and Its Components (Log Value)

	LNTR	LNTR	LNOTHRE	LNASSR	LNGRAN	LNLOAN	LNTOTR
Mean	15.36036	18.08459	18.33954	17.33236	16.49690	19.34655	
Median	15.36170	17.95023	18.34225	17.36769	16.59424	19.27971	
Maximum	16.68514	19.35172	19.05929	18.80275	19.80799	20.45893	
Minimum	13.83106	16.80546	17.71375	16.55173	12.33135	18.46303	
Std. Dev.	0.819686	0.643120	0.417804	0.553895	2.298224	0.644735	
Skewness	-0.068653	0.018690	0.149911	0.782605	-0.239004	0.237197	
Kurtosis	2.091275	2.213980	1.851047	3.486162	1.824862	1.615277	
Jarque-Bera	0.739054	0.541821	1.233737	2.350457	1.408261	1.874694	
Probability	0.691061	0.762685	0.539632	0.308748	0.494538	0.391666	
Sum	322.5677	379.7764	385.1304	363.9796	346.4348	406.2776	
Sum Sq. Dev.	13.43770	8.272064	3.491205	6.135985	105.6367	8.313656	
Observations	21	21	21	21	21	21	

Graph – 2
Line Graph of Total Expenditure and Its Components



The above table provides a Descriptive analysis of the Total Expenditure and Its components in absolute value for the years 1996-97 to 2016-17 of Nadiad Municipality (NMC). It accounts for Mean, Median, Standard Deviation and Skewness for various components of Revenue of NMC. The table also provides information on the normality of the data. The value of Jarque-Bera statistics showed acceptance of the null hypothesis- the data are normally distributed. The graph of all the components of Expenditure depicts the variability of various components. It is evident from the graph that the Other Expenditure by the NMC accounts for the highest share in the total expenditure.

Table No -5

Correlation Analysis

Covariance Analysis: Ordinary						
Correlation						
Probability	LNEST	LNCA	LNADM	LNOM	LNOTHER	LNTOTEX
LNEST	1.000000					

LNCA	0.732733**	1.000000				
	0.0002	-----				
LNADM	0.828579**	0.684757**	1.000000			
	0.0000	0.0006	-----			
LNOM	0.751657**	0.513299*	0.743378**	1.000000		
	0.0001	0.0173	0.0001	-----		
LNOTHER	0.832582**	0.657918**	0.851979**	0.803868**	1.000000	
	0.0000	0.0012	0.0000	0.0000	-----	
LNTOTEX	0.877329**	0.807224**	0.928043**	0.842154**	0.913984**	1.000000
	0.0000	0.0000	0.0000	0.0000	0.0000	-----

(** and * indicate the significant level at 1 % and 5 % respectively)

Table no. 5 is on the correlation analysis of various components of the total Expenditure of NMC. Administrative Expenditure, Establishment Expenditure, Other Expenditure and Operational and Maintenance Expenditure are significantly and positively correlated with Total Expenditure of NMC. Nearly 90 % of the variability in total expenditure is due to Other Expenditure of NMC.

Table -6
Correlation Analysis of Total Income and Expenditure

Covariance Analysis: Ordinary													
Correlation													
Probability	LNADM	LNASSR	LNCA	LNEST	LNGRAN	LNLOAN	LNNTTR	LNOM	LNOTHER	LNOTHRE	LNTOTEX	LNTOTR	LNTR
LNADM	1.000000												

LNASSR	0.820865	1.000000											
	0.0000**	-----											
LNCA	0.684757	0.773767	1.000000										
	0.0006**	0.0000**	-----										
LNEST	0.828579	0.795469	0.732733	1.000000									
	0.0000**	0.0000**	0.0002**	-----									
LNGRAN	0.864062	0.840433	0.653725	0.876444	1.000000								
	0.0000**	0.0000**	0.0013**	0.0000**	-----								
LNLOAN	-0.696633	-0.544000	-0.294283	-0.651026	-0.697480	1.000000							
	0.0005**	0.0108*	0.1954	0.0014**	0.0004**	-----							
LNNTTR	0.822506	0.857512	0.677129	0.753985	0.760139	-0.556369	1.000000						
	0.0000**	0.0000**	0.0007**	0.0001**	0.0001**	0.0088**	-----						
LNOM	0.743378	0.805835	0.513299	0.751657	0.826199	-0.575040	0.794465	1.000000					
	0.0001**	0.0000**	0.0173*	0.0001**	0.0000**	0.0064**	0.0000**	-----					
LNOTHER	0.851979	0.732086	0.657918	0.832582	0.869481	-0.727201	0.741018	0.803868	1.000000				
	0.0000**	0.0002**	0.0012**	0.0000**	0.0000**	0.0002**	0.0001**	0.0000**	-----				
LNOTHRE	0.656346	0.623979	0.730091	0.660586	0.603410	-0.303913	0.692574	0.733622	0.746908	1.000000			
	0.0012**	0.0025**	0.0002**	0.0011**	0.0038**	0.1805	0.0005**	0.0002**	0.0001**	-----			
LNTOTEX	0.928043	0.861327	0.807224	0.877329	0.878379	-0.657991	0.859505	0.842154	0.913984	0.823094	1.000000		
	0.0000	0.0000**	0.0000**	0.0000**	0.0000**	0.0012**	0.0000**	0.0000**	0.0000**	0.0000**	-----		
LNTOTR	0.887567	0.880020	0.814522	0.908135	0.915513	-0.604227	0.863500	0.869627	0.890324	0.817606	0.968562	1.000000	
	0.0000**	0.0000**	0.0000**	0.0000**	0.0000**	0.0037**	0.0000**	0.0000**	0.0000**	0.0000**	0.0000**	-----	
LNTR	0.688119	0.739244	0.765553	0.708081	0.602897	-0.435807	0.763986	0.629360	0.612521	0.686053	0.785477	0.811742	1.00
	0.0006**	0.0001**	0.0001**	0.0003**	0.0038**	0.0483*	0.0001**	0.0022**	0.0032**	0.0006**	0.0000**	0.0000**	-----

(** and * indicate significant level at 1 % and 5 % respectively)

The above table no. 6 shows the correlation matrix for all components of Total Revenue and Total Expenditure of NMC. So far as Total Revenue is concerned, it positively and significantly associated with Administration Expenditure, Assigned Revenue, Establishment Expenditure, Grant in Aid, Non-Tax Revenue, Other Expenditure, Operational and Maintenance Expenditure, Tax Revenue, and Total Expenditure. The majority variation in Total Revenue is due to Total Expenditure.

While, considering Total Expenditure of NMC, it is positively and significantly associated with Administration Expenditure, Assigned Revenue, Establishment Expenditure, Grant in Aid, Non-Tax Revenue, Other Expenditure, Operational and Maintenance Expenditure, Tax Revenue and Total Revenue. The majority variation in Total Expenditure is due to Total Revenue.

Looking to the correlation of Administration Expenditure with the various components, it is observed, that it is positively and significantly correlated with Establishment Expenditure, Grant in Aid, Other Expenditure, Tax Revenue, Total Expenditure, and Total Revenue. Assigned Revenue is significantly and positively correlated with Establishment Expenditure, Grant in Aid, Operational and Maintenance Expenditure, Total Expenditure and Total Revenue. Capital Expenditure is correlated with Non-Tax Revenue and Other Revenue significantly and positively.

Establishment Expenditure is correlated positively and significantly with Grant in Aid, Other Expenditure, Operational and Maintenance Expenditure, Tax Revenue, Total Expenditure, and Total Revenue. There is a significant and positive correlation observed between Grant in Aid and Other Expenditure, Operational and Maintenance Expenditure, Tax Revenue, Total Expenditure and Total Revenue.

Non Tax Revenue is significantly and positively correlated with Other Revenue and Total Revenue. Other Expenditure is significantly and positively correlated with Operational and Maintenance Expenditure, Total Expenditure and Total Revenue. Tax Revenue is correlated with Total Expenditure and Total Revenue with positively and significantly.

Surprisingly Loan is not correlated with any of the components of Expenditure and Revenue.

Findings and Conclusion

The analysis of the income and expenditure of the NMC for the past twenty-one years under Revenue, (Taxes, rents, fees, fines, etc. and grants) and expenditure (Salaries, wages, electricity charges, fuel charges, street lighting, etc.) revealed that the expenditure is increasing considerably. The trend growth in all major expenditure found significantly growing year after year.

While analysing Total Revenue and Total Expenditure of NMC, Total Revenue is positively and significantly associated with Administration Expenditure, Assigned Revenue, Establishment Expenditure, Grant in Aid, Non-Tax Revenue, Other Expenditure, Operational, Maintenance Expenditure, Tax Revenue, and Total Expenditure. The majority variation in Total Revenue is due to Total Expenditure. Tax Revenue is correlated with Total Expenditure, and Total Revenue are correlated positively and significantly. Surprisingly Loan is not correlated with any of the components of Expenditure and Revenue.

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'भूसाता' ग्रामचित्रो : भूसाय नहीं अवा ग्रामचित्रो

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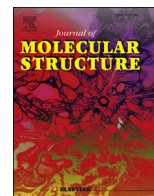
प्रस्तावना :

कवि, वार्ताकार, नवलकथाकार, निबंधसर्जक मणिलाल ह. पटेल 'भूसाता ग्रामचित्रो' निबंधसंग्रहने 'अेकवीसमी सदीमां वांचवानुं पुस्तक' तरीके ओळखावे छे. अेमनुं आ विधान सर्जन संदर्भ करता, ग्रामजीवननी निस्वतने व्यक्त करे छे. अेमनुं आ विधान सर्जन संदर्भ करता, ग्रामजीवननी निस्वतने व्यक्त करे छे. आ पुस्तकमां अेमणे भूतकाळ वनी गयेली अेक अवनवी ग्रामसंस्कृतिनी संस्मरणकथानो आलेख दीर्या छे गुजरातानां लोकजीवननी धबकती चेतना समा गामडानुं जीवन, परिवेप, ग्रामसृष्टिअने तेनी साथे अभिन्नपणे जोडावेली कृषिसृष्टिनां षब्दचित्रो मळे छे. कोइने अहीं पेटलीकरना ग्रामचित्रो के जयंत पाठकना 'वर्नाचल'नुं स्मरण पण थाय, मणिलाल ह. पटेलनां 'भूसाता ग्रामचित्रो' नवी आंख बतावे छे. अहीं व्यक्तिचित्रो आछां अने ओछां छे स्थळविषयक चित्रो वधु मळे छे.

पंचमहालनां छेवाडाना नानकडा वतनगामनुं जनपद आ निबंधोनी भाँय छे लेखक गामडानां जन्मेला-जीवतरनां जाणतल खेडुतपुत्र छे. बाळपणथी ज कृषिपरिवेप अने ग्रामजीवन अेमना लोहीमां धबके छे. वतनथी विच्छेद पामी नगरजीवननी जटाजाळमां गूथायेली आ खेडुतपुत्रनी संवेदना पोताना मलकमां, घर, खेत, पादर, सीम, वृक्षो, पंखीओ, ऋतुओ तरफ खेंचाती रहे छे. पैपव अने किपोरावस्थामां संवेदना ग्रामपरिवेपना बहुरंगी प्रकृतिरूपो हवे खूब सांभरे छे. अे रीते ग्राम संस्कृतिने अहीं मोकळुं मेदान मल्युं छे. पैपवनुं आ भातीमळ विश्व हवे लोप पामी रहयुं छे, त्यारे निबंधकारनुं मन अतीतने पुनः संवेदवानो तलसाट अनुभव छे, तेमांथी आ ग्रामचित्रो आपणने प्राप्त थाय छे. निबंधकार प्रस्तावनामां लखे छे : "हुं तूटतां गामडाने अने भूसाता असल ग्रामीचत्रोने बहु सभानपणे वर्षोथी जीवतो अनुभवतो रहयो छुं. सायुं कहुं तो अे ज मारी पीडा छे, ने अे पीडा टरीने संवेदनानुं रूप पामी त्यारे आ चित्रो लखतां जवानुं बन्युं छे." निबंधकार अहीं ग्रामजीवन तथा जनपदनां ताणावाणामां तणाइ नथी गया, बलके सभान छे, तेथी ग्रामजीवननी वास्तविकता गो वान पण जोया मळे छे. 'भूसाता ग्रामचित्रो'मां अे रीत सर्जकनो वतनराग-वतनझुरापो बळकट रीते व्यक्त थयो छे. निबंधकार गाम १९७० पछी छोडे छे, त्यारे अढी दायका पछी आ झुरापो केम व्यक्त थयो हपे ?! निबंधकार तेना प्रत्युत्तर रूपे दीकरीना आंतरजातीय लगन अने परिणामरूप समाज तरफथी मळेला नातवटाने आगळ धरे छे. ज्ञातिना वट-वहेवारने लइन लां...वा समय सुधी गाम जवानुं न थतां लेखकनो वतनप्रेम उत्कट बने छे. अेक तरफ गाम जवानी हट अने बीजी तरफ भूसातुं जतुं गाम आ बेनी वच्चे निबंधकार जाणे खूब हिजराया छे. आरंभमां 'गाम जवानी हट छोडी दे' काव्यमां आ बलवलाट व्यक्त कर्यां छे. जेमां ग्राम संस्कृतिनां प्रत्येकघटकनुं वषीकरण पण जोइ षकाय छे. निबंधकार लखे छे : "परंपराओ जेम विलाती-विसराती जाय अेम कोण जाणे केम व्हाली लागवा मांडे छे ! अेमांय प्रेम के लागणी जेवुं छे. पासे होय ने पामयां होइअे अेनी जाणे कषीविसात नथी रहेती ने जे छूटी जाय

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Single step synthesis of novel hybrid fluorescence probe for selective recognition of Pr(III) and As(III) from soil samples

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ABSTRACT

Herein, the synthesis and evaluation of a novel CHEF-PET fluorescence sensor L, based on calix[4]arene comprising two 1-Naphthoic acid groups as binding sites, is described. The selective nature of this fluorescence probe towards Pr³⁺ and As³⁺ has been investigated by emission titration, UV–vis titration, ¹H NMR spectroscopy, FT-IR, PXRD and ESI-MS investigation. The linear concentration range at pH 3.5 of L for Pr³⁺ and As³⁺ is 0–120 nM and 0–145 nM respectively with the detection limit of 1.45 nM for Pr³⁺ and 1.91 nM for As³⁺. Through Benesi-Hildebrand equation, the binding ability was found to be $7.377 \times 10^8 \text{ M}^{-1}$ for Pr³⁺ and $7.842 \times 10^8 \text{ M}^{-1}$ for As³⁺. The MOPAC-2016 software package has been used to optimize the L using PM7 and the molecular docking study has been carried out using HEX software.

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1. Introduction

The family of macrocycles has drawn much attention of many researchers in past few years for developing different effective molecular sensors. In the 70s, calixarene [1], a new family member of macrocycles was isolated and characterized by Gutsche [2] et al. apart from other members such as cyclodextrins, cucurbiturils, cryptands and crownethers. Though calixarenes have variety of derivatives like calix [4]arene, calix [6]arene and calix [8]arene; calix [4]arene has been counted as the most relevant framework for constructing ion-selective sensors. By functionalizing calix [4]arene at its upper and lower rim, the power of encapsulating many different ions is increased and it works as very effective host molecule [3–11].

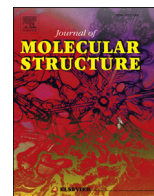
Metals such as Fe²⁺, Cu²⁺, Mn²⁺ and Zn²⁺ are present in human body while Pr³⁺, La³⁺ and Nd³⁺ exist in different soil samples whereas water contains As³⁺ and Hg²⁺ as impurities. In short, metals subsist in different forms with different quantities everywhere. This has been inspiring for researchers to develop such molecular sensors which can detect metal ions easily with its well-defined binding core. Fluorescence signalling is one the most

appropriate techniques to recognize metal ions through tangible fluorescence signals. The combination of calix [4]arene and fluorescence signalling technique results into edifice simple, selective and affordable fluorescence probe.

In photoinduced electron transfer (PET), the energy of the HOMO of the free host lies between those of the HOMO and LUMO of the excited fluorophore and then electron transfer from the HOMO of the Host to the hole in the HOMO of the fluorophore takes place. PET process always follow quenching of emission intensity when guest molecular ions bind to host. Photoinduced charge transfer (PCT) mechanism has been involved in those fluoroionophore which contain electron withdrawing and electron-donating substituents, this charge transfer may arise over long distances and be connected with major dipole moment changes, making the process particularly sensitive to the microenvironment of the fluoroionophore. Another class of fluoroionophores, where intramolecular interaction between a pair of different fluorophores in which one acts as a donor of excited-state energy to the other (acceptor). As a result that the donor returns to its electronic ground state and emission may then occur from the acceptor center. This process is known as fluorescence resonance energy transfer (FRET). There are also few other mechanism in calix [4] arene system such as metal-ligand charge transfer (MLCT), proton transfer, formation of an excimer and chelation-enhanced fluorescence (CHEF) for the molecular recognition [12–22].

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Turn on fluorescence strip based sensor for recognition of Sr^{2+} and CN^- via lower rim substituted calix[4]arene and its computational investigation

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ABSTRACT

Fluorescence sensor L designed around a calix[4]arene scaffold, bearing two fluorogenic aminoquinoline moieties, has been synthesized. It is found to be selective and sensitive towards Sr^{2+} and CN^- over a wide range of cations and anions in a spectrofluorometric study in acetonitrile. The ion-binding property of L was monitored by fluorescence spectroscopy, UV-vis spectroscopy, ESI-MS, ^1H NMR, FT-IR investigation and PXRD study. The host L shows a minimum detection limit which is 1.36 nM for Sr^{2+} and 1.23 nM for CN^- having concentration range 5–120 nM and 5–115 nM respectively. The calculated binding constants for L: Sr^{2+} and L: CN^- are respectively $8.859 \times 10^8 \text{ M}^{-1}$ and $8.574 \times 10^8 \text{ M}^{-1}$. Our host L has been utilised in formation of a user-friendly, affordable, and disposable paper-based analytical device (PAD) for rapid chemical screening of Sr^{2+} and CN^- ion via single strip. Moreover, the optimization of probe L has also been done by the MOPAC-2016 software package using NM7 popular method resulting -21.71 kcal/mol heat of formation and also determined the HOMO-LUMO energy band gap for L, L: Sr^{2+} and L: CN^- . Further, molecular docking score has been calculated using HEX software. The applicability of our probe in real samples containing Sr^{2+} and CN^- has also been checked by emission study with 94–99% recovery.

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1. Introduction

Detection of cations, anions and neutral molecules is currently stint of major consideration in the modern research work due to their prevalent applications in chemical, biological and environmental assays. Though Sr^{2+} is broadly used in optical industry, painting industry and military industry, it is considered as a major component of 'dirty bomb'. Besides, the Department of Energy entails a field instrument that can contrivance the real-time characterization and observation of radioactive Sr-90 inside high level waste tanks [1–2]. Despite of acute toxicity, CN^- is used in many industries such as synthetic fibres and resins, herbicides, gold extraction, etc. and also can be found in many fruits and plants. Consequently, any fortuitous release of the extremely toxic cyanide certainly leads to water and environmental corruptions [3–6]. The homeland security and antiterrorist activities with the help of Sr^{2+} and harmfulness of CN^- have elicited substantial attentiveness in developing a convenient and easy-to-use molecular sensor.

There is a wide range of instrumental techniques for the trace identification of molecular ions but the real-time use of these techniques is

limited due to their expensive instrumentation, not easy to operate them on-site and lack of portability. Simultaneously, one tactic which draws the attention of researchers is fluorometry technique. The interest has been directed towards the making of simple π -electron-rich molecule as a fluorescence sensors. In fluorescence-based sensing method, fluorophore is tethered with an ionophore to build fluoroionophore in order to detect molecular guest ions. The ionophore acts as a binding site for the analyte whereas the fluorophore serves as a signalling unit which provides optical response after detection of a recognition event. It has emerged as one of the most robust method due to its high efficiency, simplicity and ultra-sensitivity to construct an effective and economic chemosensor.

Calixarenes [7–8], produced by the condensation of p-substituted phenols with aldehydes, a part of macrocyclic family, paves new avenues in diverse areas. The popularity of calixarenes, especially calix[4]arene, arises owing to their amphiphilic nature, existence of platform for appropriate substitution at lower and upper-rim, presence of arene core and flexible arms to provide suitable and selective coordination environment. To broaden the area of sensing molecular ions, the architecture of functionalized calix[4]arene [9–11] and fluorometry technique are used. Different motifs are appended at the upper rim as well as lower rim of calix[4]arene which act as tweezers and chelate the guest ions. Due to this, the efficiency of

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Low Dimensional Solids and Molecular Crystals

Structural and electronic properties of 3-[2-(3, 4-dimethoxy phenyl)-ethyl]-2-methyl-3H-quinazoline-4-one: experimental (X-ray crystal structure) and theoretical (quantum chemical calculations) approach

Sahaj A. Gandhi  , Rajeshkumar D. Modh, Urmila H. Patel, Bharatkumar D. Patel, Kishor H. Chikhalia & Amit C Patel

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Abstract

A novel quinazoline derivative, 3-[2-(3, 4-Dimethoxy phenyl)-ethyl]-2-methyl-3H quinazoline-4-one has been synthesized and characterized by FTIR, NMR, and single crystal X-ray diffraction technique. The molecular stability is mainly due to weak but collective contributions of significant intra and inter molecular C-H...O, C-H...N, C-O... π , and π - π hydrogen bond interactions and those interactions quantified by Hirshfeld



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Research Article

Facile Synthesis of (E)-5-Styrylpyrimidines via Wittig Reaction Using Sodium Tripolyphosphate in Water

Author(s): Anilkumar S. Patel*, Sahaj A. Gandhi, Rajesh D. Modh, Urmila H. Patel, Yogesh T. Naliapara and Naval P. Kapuriya*

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Abstract

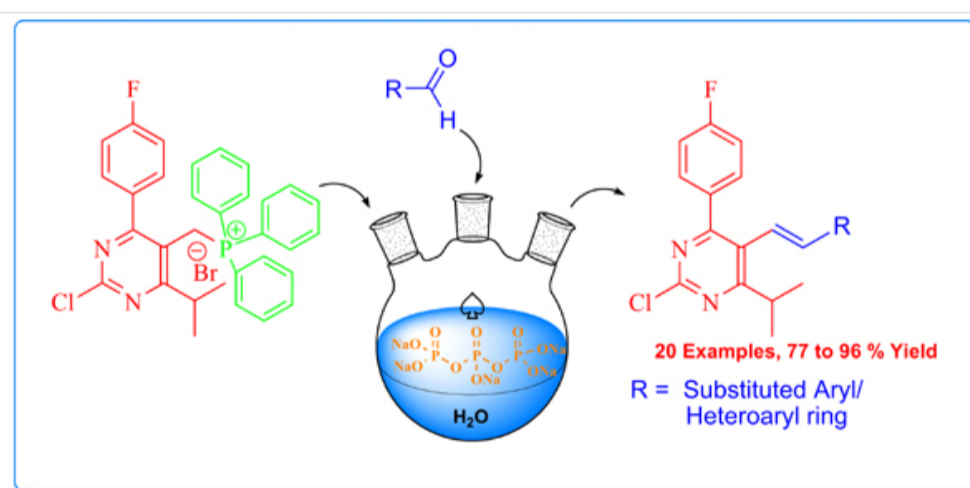
An inexpensive and eco-friendly Wittig olefination protocol has been developed to prepare novel (E)-5-styrylpyrimidines. The reaction of pyrimidine phosphonium ylide with different aryl/heteroaryl aldehydes underwent smoothly in the presence of sodium tripolyphosphate (STPP) in aqueous condition giving (E)-5-styrylpyrimidines (10a-t) in very high yields (77-96 %).

Keywords: [Wittig reaction](#), [\(E\)-5-styrylpyrimidines](#), [green chemistry](#), [water-mediated](#), [sodium tripolyphosphate](#).

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Graphical Abstract



A green Wittig olefination protocol has been developed to prepare bioactive (E)-5-styrylpyrimidines from pyrimidine phosphonium ylide and different aryl/hetero-aryl aldehydes in aqueous media.

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FINANCIAL PERFORMANCE OF MFI'S IN INDIA: A STUDY OF BHARTIYA SAMRUDDHI FINANCE LIMITED (BASIX)

DR. VIRAL. H. KACHHIA PATEL*

Abstract:

Micro finance is the extension of small loans to entrepreneurs too poor to qualify for traditional bank loans. It has proven an effective and popular measure in poverty alleviation programmes, enabling those without access to formal lending institutions to borrow at competitive rates, and start small business. The key implication of microfinance is in its name itself: 'micro'. A number of issues come to mind when 'micro' is considered: The small size of the loans made, small size of savings made, the smaller frequency of loans, shorter repayment periods and amounts, the micro/local level of activities, and the community-based immediacy of microfinance.

Key Words: Microfinance Institutions, Poverty Alleviation, Financial Performance, Financial service.

PROFILE OF BHARTIYA SAMRUDDHI FINANCE LIMITED (BASIX) :

Bhartiya Samruddhi Finance Limited (BASIX) is one of the largest MFIs in India. The CEO and founder of BASIX, Vijay Mahajan, founded BASIX as an NBFC in 1996 along with Bharti Gupta Ramola and Deep Joshi. Mahajan is a graduate of the Indian Institute of Technology (IIT) in Delhi and the Indian Institute of Management (IIM) in Ahmedabad. BASIX was started with approximately US\$25,500 (43 Rs/\$) contributed by its founders who intended to leverage this equity with developmental loans. The founders of BASIX believed in promoting sustainable livelihood for the poor through social entrepreneurship which they defined as, "Business for a Social Purpose." Thus, BASIX was founded upon the idea of an institution that would focus on reducing poverty through increased livelihood opportunities for the poor. BASIX is unique from began as an NBFC, but evolved into a holding company in which an NBFC, Local Area Bank (LAB), and NGO are held. The NBFC portion of the BASIX group, which will be the focus of the financial and social impact analysis of this case study, is Bhartiya Samruddhi Finance Limited (BSFL). The founder of the BASIX companies, Vijay Mahajan, had also founded an NGO, PRADAN and after conducting research decided to open a development finance company. Bhartiya Samruddhi Finance Limited (BSFL) is an NBFC registered under the Indian companies act and regulated by the Reserve Bank of India (RBI). 'Bhartiya' means 'Indian' and 'Samruddhi' means 'prosperity.' The name was chosen in order to emphasize prosperity rather than poverty. The BASIX group together provides approximately 90,000 clients in nine states with credit, insurance, agricultural business development services and capacity building. Samruddhi (BSFL) is the financial arm of BASIX which provides financial services, predominantly microcredit, insurance, and technical assistance to the rural poor. Samruddhi, as of 2017, works in 4,300 villages spread over 18 districts in the states of Andhra Pradesh, Karnataka, Maharashtra, Orissa and Jharkhand. The company has cumulatively disbursed Rs. 1135 million or approx US\$264,000,000 (Exchange Rate of 43 Rs/\$) through 175 customer service agents (CSAs). Krishna Bhima Samruddhi (KBS Lab) is BASIX's local area bank (LAB) and is therefore a regulated bank that can mobilize deposits in its local district in Andhra Pradesh. KBS Lab is BASIX's newest company and India's first micro-finance bank started in 2001 in efforts to offer clients savings services. The last company, Indian Grameen Services (ISI), at BASIX is a non-profit registered "section 25" company that conducts livelihood research and development of potential products and services for the BASIX Group. Mr. Mahajan originally created BASIX as an NBFC because he felt that this was the best way to deal with the paradox he saw India in which there was neither widespread access to financial services nor sustainability of their delivery. Such an opinion was formed during a study Mahajan completed for the World Bank along with Bharti Ramola on the demand for and supply of financial services for the rural poor and women in India. BASIX's mission also states, "BASIX will strive to yield a competitive rate of return to its investors as to be able to access mainstream capital markets and human resources on a continuous basis." We note that this mission statement is much more commercially oriented in nature, which likely stems from the fact that from inception, BASIX has had the dual goal of social impact and financial return.

OBJECTIVE OF THE STUDY:

- To major the Financial performance of Microfinance Institutions in India.
- To explain the social impact of MFI's in India

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Research Guide, S. P. University.

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A COMPARATIVE STUDY ON PROFITABILITY ANALYSIS OF SELECTED FMCG COMPANIES IN INDIA

Kanchan K. Khatri
Research Scholar, S. P. University.

Dr. Kapil K. Dave
Research Guide, S. P. University.

Abstract

The main objective of any business unit is to maximize their profit. All the stakeholders are always eager to know the profitability of industry and its trend. The present study focuses on analysis of profitability by employing profitability ratios of selected FMCG companies in India. Analysis of study reveals that financial performance of Hindustan Unilever Ltd. (HUL) was better in terms of Return on Net Worth, Return On Capital Employed and Return On Assets where as its Net Profit Ratio and EPS was not satisfactory. Performance of ITC was better in net profit ratio and performance of Britannia was best in EPS when compared with others. It was suggested that government of India should design tax incentive and tax relief policies for those sectors of Indian economy that can contribute towards the growth of nation.

Keywords:- FMCG, Net Profit Ratio, Return on Net Worth, Return on Capital Employed, Return on Assets, EPS.

Introduction

Fast – Moving Consumer Goods (FMCGs) industry stands at the fourth largest sector in Indian economy producing, distributing and marketing fast moving consumer goods. Fast – moving consumer goods includes toiletries, cosmetics, household, electronics and packaged goods. Looking towards the history of FMCG sector, before economic reforms 1991, local people had limited purchasing power due to which they only purchased necessity products. During this period, people were not aware about foreign brands and western clothes. Between 1980 and 1990, they started demanding variety in existing products which forced FMCG sector to establish in India. FMCG sector accounts for 50% of total sales in India. In 2017, share of retail market in India accounted to US\$ 840 billion which is expected to grow up to US\$ 1.1 trillion by 2020. To boost the FMCG sector, the government of India has allowed 100% FDI in food processing and single brand retail while 51% in multi-brand retail. The annual growth rate of FMCG sector noted to 20-25%. Total revenue of FMCG sector accounted for US\$ 49 billion which is expected to grow at rate of 9-9.5% every year.

Net Profit Ratio:- Net Profit ratio is a ratio which shows relationship between net profit earned to net sales. This ratio depicts the amount available for owners of business after all operating expenses are met.

Return on Net Worth:- Return on net worth is a profitability ratio which shows relationship between net income to shareholder's funds. It shows the efficiency of business to employ the owner's funds in business. This ratio is of great importance to prospective shareholders to compare earnings of one company with that of another company.

Return on Capital Employed:- It is a ratio which shows connection of net profit to capital employed. Capital employed includes share capital, reserves and long-term liabilities. It is helpful to management to evaluate success of business enterprise.

Return on Assets:- Return on assets ratio is used to analyze a company's efficiency in using its assets of a company to generate profit.

Earnings Per Share:- It is a ratio which shows maximum amount to be paid to equity shareholders in form of dividend. EPS is a profitability ratio which analyses the profitability from owner's view point.

Review of Literature

(Venkatesan & Nagarajan, 2012) & (M. Krishna Moorthi, 2012) analyze the profitability of top 5 India steel companies SAIL, TATA, BHUSHAN, VISA and JSW for the period of 6 years (2005-06 to 2010-11). Analysis results shows that there was no significant difference in profitability ratios of various selected companies. There existed positive correlation between net profit ratio and operating ratio between SAIL and TATA and negative correlation was observed in net profit ratio and operating profit ratio of BHUSHAN and JSW. T-test result shows that there was no relation between net profit ratio and operating profit ratio of SAIL & TATA and BHUSHAN & JSW.

(Tulsian, 2014) has analyzed profitability of SAIL and TATA by employing traditional ratios. Result of the study showed that there was no significant difference in the gross profit ratio and return on capital employed but there existed significant difference in the operating profit of the two companies under the period of study.

(Solanki & Shukla, 2017) study analyzed the profitability of selected banks of India. Findings of study showed that return of equity ratio of Bank of Baroda was highest while return on capital employed of IndusInd bank was highest. There was significant difference between return on equity and return on capital employed in selected banks under the period of study.

(Shakila, 2019) focused on profitability analysis of four types of bank by using return on assets and return on equity for the period



AN ASSESSMENT OF NADIAD MUNICIPALITY- A TREND ANALYSIS OF INCOME AND EXPENDITURE

Sanjaykumar D. Paramar*
Vijay . S. Jariwala**

ABSTRACT

The foremost objective of any government in modern society is not restricted up to looking after law and order but has to work for more egalitarian society. Accordingly, the spread of functions and working of government has been increased very much. A very large number of these functions are local in nature so would be better performed by local government. It is statutory responsibility of local governments in India to perform all these functions from “womb to tomb.” Local authorities are expected to provide minimum infrastructural facilities like health, education, welfare and environmental services for all the local citizens. Under the three tier federal government system, local government generally observes many responsibilities of higher government. In most of the local affairs, the local government turns out to be economical for managing many functions of higher government. The importance of the subject of local finance follows logically and essentially from the growing importance of government activity in the modern world. Finance may be described as the lubricant for the smooth functioning of the local government machinery. This study proposes the assessment for expenditure and income of pattern of Nadiad Municipality (NMC) of Gujarat state for the time period of 1996-97 to 2016-17. It also intends to provide sustainable strategies to improve financial health of the Municipality. The results of this exercise are robust as the income elasticity which shows the percentage change in income due to unit change in the expenditure of NMC remains same which is indication of balance budgeting of NMC throughout the whole time period of the present study. It also indicates exponential growth of almost all the variables of Income and Expenditure components of NMC.

Keywords: Urban Finance, Nadiad Municipality, Total Revenue, Total Expenditure

JEL Code: H7, H710, H72

Introduction

The foremost objective of any government in modern society is not restricted up to looking after law and order but has to work for more egalitarian society. Accordingly, the spread of functions and working of government has been increased very much. A very large number of these functions are local in nature so would be better performed by local government. It is statutory responsibility of local governments in India to perform all these functions from “womb to tomb.” Local authorities are expected to provide minimum infrastructural facilities like health, education, welfare and

environmental services for all the local citizens. Under the three tier federal government system, local government generally observes many responsibilities of higher government. In most of the local affairs, the local government turns out to be economical for managing many functions of higher government. The importance of the subject of local finance follows logically and essentially from the growing importance of government activity in the modern world. Finance may be described as the lubricant for the smooth functioning of the local government machinery.

The present day local governments have to observe

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more complex and multifaceted responsibilities in varied forms. On the one hand they are expected to provide urban civic amenities and on the other hand they have to build up the efficient infrastructure for growing urban population. Local governments are also expected to provide economic means for growing urban population. They have to act as an "instrument of economic activity" and the engine of economic development. Generally, they have to undergo following functions- (a) at grass-root level, promoting life with more democratic way, (b) to ensure social development by integrating local social and cultural life, (c) To ensure and enhance the local economic development by implementing strategic planning and administration, and (d) to adopt cautious fiscal management in pursuit of stabilization objective of central government.

In pursuit of these functions can be further classified in two broad categories like social developmental functions and economic developmental functions. They are discussed in detail as below.

Social Development

The urban local bodies promote social development in various ways, firstly through education, health, welfare and community developmental services known as social overhead services and facilities for enjoying leisure. Secondly, they create conditions for social, cultural adoption on account of migration to the cities, thereby creating inequalities of income opportunities. In this respect, the urban governments have to identify the needs of the different segment of the urban community and strive for reduction of such inequalities, provision of social relations lead to social development.

Economic Development

The town and cities were centers of economic activities, and therefore, the governments have to create conditions conducive to the expansion of these activities. They have to provide economic and social overheads, which are significant for attracting economic activities. The urban governments have to participate in the capital projects within their own jurisdiction, keeping with the broad national objectives, priorities, and policies. Hence, the urban government has to provide public utilities such as water, transport, power, and housing, infrastructures

such as roads, sewage, and effluent disposal. This range of activities affected the life pattern in urban areas and contributed largely towards the economic development of the urban community and, ultimately, to national development.

The importance of the subject of local finance follows logically and essentially from the growing importance of government activity in the modern world. Finance may be described as the lubricant for the smooth functioning of the local government machinery. Local functions and local finance are inseparably intertwined. By nature they are concurrent and exist for each other. Local finance is prerequisite for local functions, while in absence of local functions, local finance becomes irrelevant (Bardoli, 1972). Under the public finance, local finance is a sub-branch of it which deals with the local income and local expenditure of local government. It works with the process and principles of raising and spending money essential for the support of the local government in satisfying the collective wants of the people under its jurisdiction (Bardoli, 1972).

This study proposes to study trend analysis of income and expenditure of the Nadiad Municipality (NMC) of Gujarat state for the suggestions of suitable policies to sustainable financial management at local level. 'Sudhrai' was established in Nadiad in 1866. Much of the development has been observed after the establishment of Sudhrai in this city. Nadiad Sudhrai was replaced by 'Municipality' on 1st April 1883. Afterwards, this Municipality has been growing exponentially.

Nadiad, is located in Gujarat state, in India. It is not a city, but it is the administrative centre of Kheda district. The city has roots that go to the glorious past and stands as the epitome of well-administered cities in Gujarat. The city is also alternatively known as Sakshar Bhumi or the Land of the Educated. The town has historical importance in terms of freedom struggle, has an impressive literary and scholarly history and is an ancient place that has been ruled by various rulers.

Review of Literature

There have been a very few attempts made to analyze the finances of local bodies. While referring

to finance, Mathur and Takur (2004) have analysed it for urban local bodies. Jha (2002) has studies finances of rural local bodies. Regarding the evaluation of local government with respect to the scope and approach, attempts have been made by Bagchi & Chattopadhyay (2004), and Pethe & Lalvani (2006).

Good amount of research is available so far as municipal finances of Gujarat are concerned. They distinguished on the basis and of the methodology used, the time period considered and the regions taken for the study. Important researches are from Joshi (1994), Parekh (2004), Oddedara (2005) and Joshi (1999) specifically for Gujarat Municipalities. Most of these studies dealt with analysis of income and expenditure of local government with varied objectives and methodologies for Gujarat state.

Data and Research Methodology

This research exercise is on secondary data published by local government in its annual reports and various other information collected in discussions with office bearers of Nadiad

Municipality. For the present study, the detailed absolute data for the last twenty-one year relating to the financial condition of the Nadiad Municipality is considered. The data on revenue and expenditure for the 21 years between 1996-97 and 2016-17 was obtained from the various annual accounts and annual budgets the municipality. To find the accuracy of data and association among the various components of Income and Expenditure of Nadiad Municipality, trend analysis, growth rate analysis and elasticity tools are used.

Limitations

The limitation of the study is that, all the statistical information required for intensive research on local finance which is not readily available. So, the study cannot be extended in many directions. This study is a case study for the finances of the Nadiad Municipality and it deals with only income and expenditure data. The other limitation of the study is that it accounts for only twenty-one years of data. The analysis has been done keeping in mind the form in which data are available. All this may be considered as limitations of the study.

Trend Analysis of Income and Expenditure

Table-1 Income and Expenditure of Nadiad Municipalit

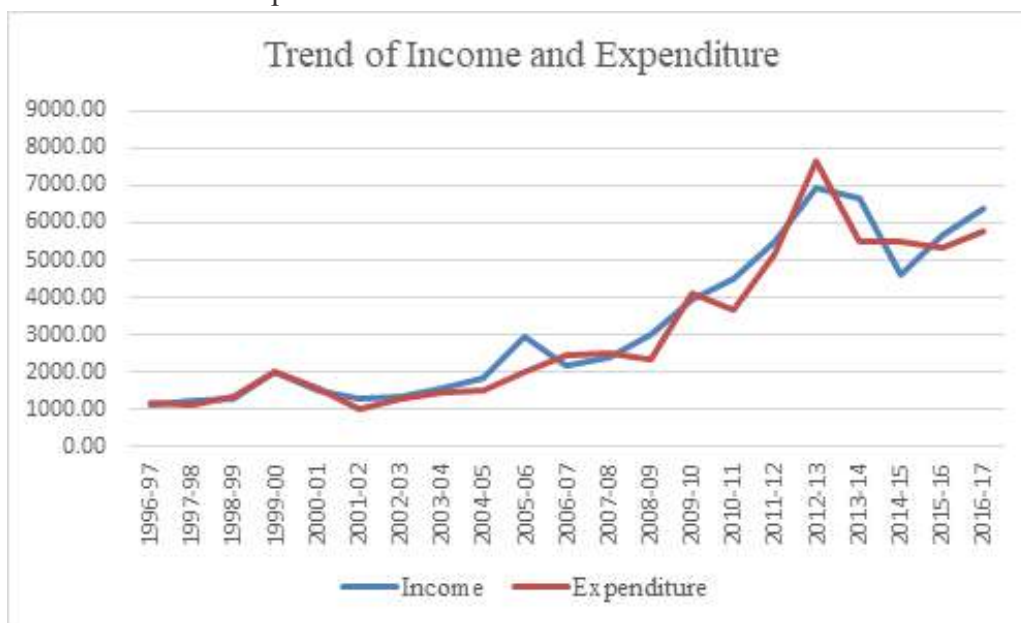
Years	Income (in lakh Rs.)	Expenditure (in lakh Rs.)
1996-97	1105.52	1184.61
1997-98	1218.15	1132.30
1998-99	1316.12	1334.48
1999-00	2012.61	2014.08
2000-01	1501.28	1546.52
2001-02	1312.98	1043.26
2002-03	1340.56	1291.57
2003-04	1591.03	1483.49
2004-05	1864.65	1542.31
2005-06	2966.23	2020.09
2006-07	2184.49	2429.47
2007-08	2376.65	2503.70
2008-09	3030.59	2361.31
2009-10	3940.44	4106.14
2010-11	4480.48	3664.86
2011-12	5509.33	5141.13
2012-13	6958.66	7677.16
2013-14	6640.47	5476.99
2014-15	4635.22	5523.15
2015-16	5684.19	5355.30
2016-17	6357.26	5797.31

Sources: NMC's Annual Accounts

Table 1 is showing the changing picture of income and expenditure over 21 years from 1996-96 to 2016-17 of NMC. The data of the present table is indicating the increasing trend of income throughout table 1 is showing the changing picture of income and expenditure for 21 years from 1996-96 to 2016-17 of NMC. The data of the present table is indicating the increasing trend of income throughout the study excepting some period. Also, the manual

data obtained for expenditure, which is reflecting the increasing trend presence within the expenditure data over the total study period, i.e., 1996-96 to 2016-17, except for some period. Also, the manual data obtained for expenditure, which is reflecting the increasing trend presence within the expenditure data over the total study period, i.e., 1996-96 to 2016-17, except for some period.

Graph: 1 Trend of Income and Expenditure



Sources: NMC's Annual Accounts

Graph 1 reflecting that as the income is increasing the expenditure of the NMC is also increasing; hence, it has been analyzed that the increasing trend is present within the income and expenditure data. The above trend line only makes clear that which kind of tendency has been revealed by the data. It has also clarified at first glance that the same trend was present within the Income and Expenditure during 1996-97 and the amount of income is slightly more than Expenditure in 2001-02. Overall Income and Expenditure pattern is linear with some exceptional points on a graph at 2006-07, 2007-08, 2010-11, 2012-13, 2014-15, and 2016-17. These six year's data are indicating the significant variation in the income versus expenditure pattern. During years of 2012-13 and 2014-15 NMC was in loss due to high

expenditure and low income but the picture had been changed in 2013-14 and 2015-16 significantly. There was a sharp increment in the income due to grant component of income of NMC, which indicates the strength of the NMC. Then the NMC also increased the expenditure over the infrastructure and the basic civic amenities. Both Income and Expenditure are highest over the year 2012-13 within the data of 21 years. Then again, the income and expenditure had reduced significantly during the year 2014-15, and the NMC was in loss. The trend and pattern of income and Expenditure have been continuously increased and upward slop during 1996-97 to 2016-17 with exceptional years 2013-14 and 2014-15. The data was collected in the annual account form the NMC.

Growth Rates of Income and Expenditure

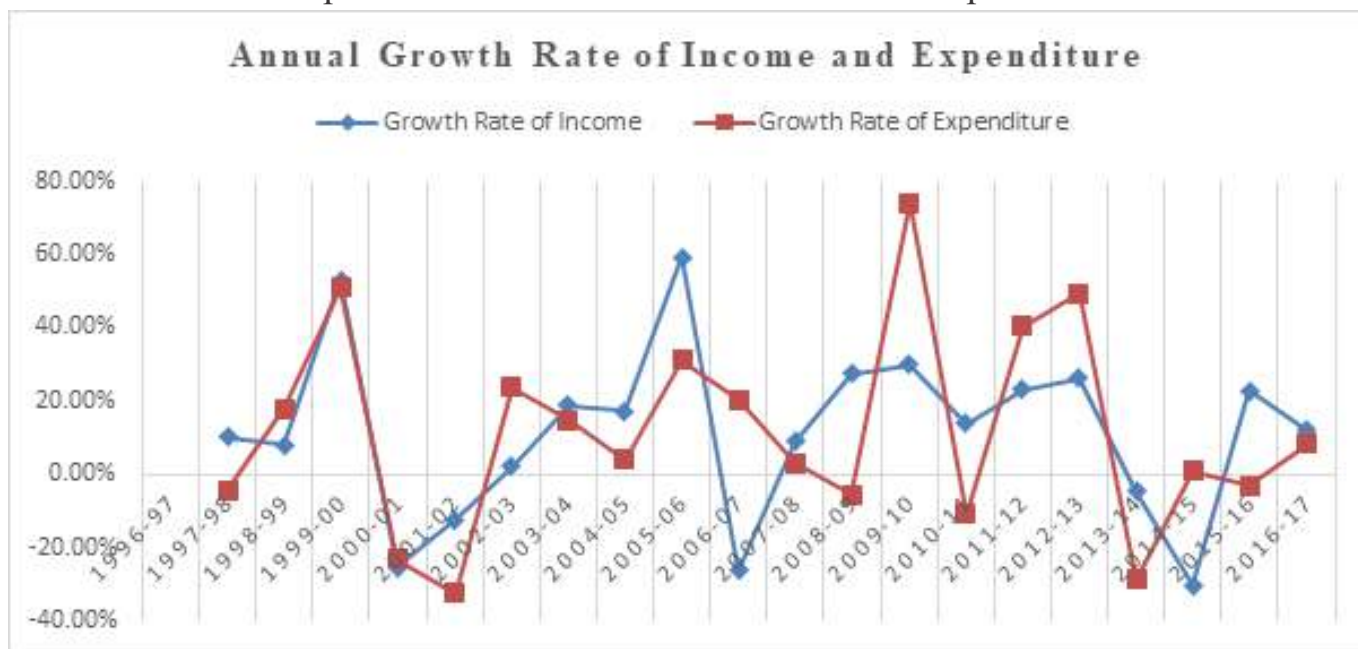
Table-2 Income, Expenditure and Annual Growth Rate of Income and Expenditure

Years	Income (in lakh Rs.)	Expenditure (in lakh Rs.)	Annual Growth Rate of Income (%)	Annual Growth Rate of Expenditure (%)
1996-97	1105.52	1184.61	---	---
1997-98	1218.15	1132.30	10.19%	-4.42%
1998-99	1316.12	1334.48	8.04%	17.86%
1999-00	2012.61	2014.08	52.92%	50.93%
2000-01	1501.28	1546.52	-25.41%	-23.21%
2001-02	1312.98	1043.26	-12.54%	-32.54%
2002-03	1340.56	1291.57	2.10%	23.80%
2003-04	1591.03	1483.49	18.68%	14.86%
2004-05	1864.65	1542.31	17.20%	3.96%
2005-06	2966.23	2020.09	59.08%	30.98%
2006-07	2184.49	2429.47	-26.35%	20.27%
2007-08	2376.65	2503.70	8.80%	3.06%
2008-09	3030.59	2361.31	27.52%	-5.69%
2009-10	3940.44	4106.14	30.02%	73.89%
2010-11	4480.48	3664.86	13.71%	-10.75%
2011-12	5509.33	5141.13	22.96%	40.28%
2012-13	6958.66	7677.16	26.31%	49.33%
2013-14	6640.47	5476.99	-4.57%	-28.66%
2014-15	4635.22	5523.15	-30.20%	0.84%
2015-16	5684.19	5355.30	22.63%	-3.04%
2016-17	6357.26	5797.31	11.84%	8.25%

Sources: Annual Accounts of NMC.

Table 2 depicts the annual growth rate of income and expenditure for the period 1996-97 to 2016-17. The above data, clearly identifying that the maximum growth rate of income which was 59.08 percent during the year 2005-06 and minimum during the year 2014-15 i.e. -30.20 percent. The growth rate of expenditure was maximum for the year 2009-10 with a value of 73.89 percent and minimum for the period 2014-15, i.e., 28.66 percent.

Graph No: 2 Growth Rates of Income and Expenditure



Sources: Annual Accounts of NMC.

Graph 2 is explaining the data at a single glance and showing the trend present within the growth rate of income and expenditure. It is clear from the above graph that the pattern followed by the growth rate of income and expenditure is erratic. Graphically it is clear that the periods of 1997-98, 2000-01, 2001-02, 2006-07, 2008-09, 2010-11, 2013-14, 2014-15, for which graph lines are below the baseline, i.e., negative. It is further seems that the growth rate of income and expenditure are nearly equal for the year 1999-00. The growth rate of expenditure is higher

than the growth rate of income during 2002-03, 2006-07, 2009-10, 2011-12, 2012-13, and 2014-15.

The Relation between Income and Expenditure

Income elasticity can clarify the relationship between revenue and expenditure in real terms. Income elasticity shows unit change in change in Income to Expenditure. The income elasticity is defined the ratio of percentage change in the expenditure with respect to the percentage change in the income of NMC.

Mathematically it can be expressed as:

$$\text{Income Elasticity } (E_y) = \frac{\Delta y}{\Delta q} \times \frac{q}{y} \dots\dots\dots (1)$$

Where,

y= Actual NMC's Income

q= Actual NMC's Expenditure

Δy= Change in the NMC's Income

Δq= Change in the NMC's Expenditure

There are five types of Income Elasticity, which are as follows: (a) Perfect Elastic ($E_y = \infty$), (b) Perfect Inelastic ($E_y = 0$), (c) Unitary Elastic

($E_y = 1$), (d) Relatively Elastic ($E_y > 1$), (e) Relatively Inelastic ($E_y < 1$)

In this section, income elasticity of expenditure is a measure of the relationship between a change in expenditure and change in Income. It is calculated mathematically with the use of MS Excel. The income elasticity of expenditure is calculated by using above mentioned formula (1).

Table-3 Income, Expenditure and Income elasticity for Nadiad Municipality

Years	Total Income in lakh	Total Expenditure in lakh	Income Elasticity
1996-97	1105.52	1184.61	-
1997-98	1218.15	1132.30	-2.00
1998-99	1316.12	1334.48	0.49
1999-00	2012.61	2014.08	1.03
2000-01	1501.28	1546.52	1.13
2001-02	1312.98	1043.26	0.30
2002-03	1340.56	1291.57	0.11
2003-04	1591.03	1483.49	1.22
2004-05	1864.65	1542.31	3.85
2005-06	2966.23	2020.09	1.57
2006-07	2184.49	2429.47	-2.12
2007-08	2376.65	2503.70	2.73
2008-09	3030.59	2361.31	-3.58
2009-10	3940.44	4106.14	0.54
2010-11	4480.48	3664.86	-1.00
2011-12	5509.33	5141.13	0.65
2012-13	6958.66	7677.16	0.63
2013-14	6640.47	5476.99	0.12
2014-15	4635.22	5523.15	-51.76
2015-16	5684.19	5355.30	-5.89
2016-17	6357.26	5797.31	1.39
Total	68026.90	64629.25	-2.36

Sources: Annual Accounts of NMC.

Above table 3 shows the income elasticity of expenditure over the whole period of study from 1996-97 to 2016-17. It is clear from the above Table that the income elasticity of expenditure was higher than one for eight years, less than a unit for six years and negative for six years. The income elasticity of expenditure was highest for 2004-05 (3.85), which was more than unity; it means that the high fluctuation in the expenditure generates a more than higher changes into the income. The income

elasticity for 2011-12 is 0.65, which means one percent change in expenditure shall generate less than unit percent change in the income.

Similarly, the high positive value of income elasticity is of 2004-05, which is 3.85, which is higher than unity and implies that one percent change in the expenditure generated 3.85 percent change in the income. This year data is highly sensitive. The income elasticity is fluctuating throughout the study with maximum variation

during 2004-05. In the year 1999-00 income elasticity of expenditure is 1.03, which shows that the ratio of percentage change in expenditure due to the percentage change in income is approximately equal. Negative income elasticity of NMC found negative for six years, 1997-98, 2006-07, 2008-09, 2010-11 and 2014-15. These years the growth rate of income was less than compare to the previous years. It was found highest for 2014-15 with value -51.79, it show the high gap between percentage change for income and expenditure compare to the previous year. It inferred a one percent change in expenditure reduce income by 51.76 percent. The next year 2015-16 also shows second highest negative income elasticity of expenditure, for this year it found to be -5.89. it means one percent change in expenditure reduce in income 5.89 percent.

It observed that the overall value of income elasticity is negative, which reflects that the total percentage change in expenditure of NMC generates roughly the negative change in the income of the NMC. This result also explains the lack of balancing budget of the NMC throughout the whole period of the present study.

Findings and Conclusion

It can be concluded that the linear and increasing trend was followed by the income and expenditure of the NMC with exceptional during the periods of 2006-07, 2007-08, 2010-11, 2012-13, 2014-15, and 2016-17. Besides, it had been observed that both income and expenditure were maximum during the financial year 2012-13 throughout the whole period of research. The growth rate of income and expenditure has reflected the irregular pattern, and no particular trend has been followed by the growth rates of both revenue and expenditure. The reason behind irregularities in growth rate pattern of expenditure is that the expenditure by the NMC was not made through any policy.

Overall value of income elasticity is approximately less than one, which reflects that the total percentage change in expenditure of NMC generates roughly the less change in the income of the NMC. This result

also explains the lack of balancing budget of the NMC throughout the whole period of the present study.

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A study on Profitability Evaluation of Maruti Suzuki Limited

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Abstract:

Automobile sector has emerged as a Sunrise sector in India. Overall automobile export grew by 14.89 percentage over a period of April-March, 2015. According to SIAM, in April-March, 2015, passenger vehicles, commercial vehicles, three wheelers and two wheelers grew by 4.42 percent, 11.33 percent, 15.44 percent and 17.93 percent respectively over the same period. The healthy development and rapid growth of this industry has always been very important for Indian economy. Proper analysis is done through the usage of profitability ratios to ensure that the profit is earned. These are the most vital and reliable indicators in measuring financial performance. Profitability ratio keep a watch on the operating performance and act as a helping hand to management for taking corrective measures if there is decline in profitability. The present study covers the prosperity and growth of Maruti Suzuki Limited. The study covers the period of 10 years from 2010-11 to 2019-20 stop the study uses of profitability ratio, growth chart and statistical tools to measures the profitability.

Key words: Net profit, EBITDA, PBT, PAT, RONW

Introduction:

Profit is a life blood of the business. Profit is must for the survival, growth and expansion of business. For the Satisfaction and building the trust of the investors, to repay the debts, to pay expenses Profit is required. So there is much importance of profitability analysis. The profitability analysis enables the organization to identify weather investment is getting better return or not, management is efficient or not, organization has employed workers or not, profit act as the benchmark for smooth operation of a business.

The study aims at analyzing the performance of the Maruti Suzuki Limited using different financial ratios. The objective of the study is to analyze the profitability of the Maruti Suzuki Limited. The study covers the period of 10 years. The financial statements are to be analyzed with respect to profitability of the company.

Company profile:

Maruti Suzuki India Limited (Maruti Udyog Limited) is India's largest Passenger car company accounting over 50% the domestic car market. The company offers the full range of cars from entry-level like Maruti Alto, Ritz, A-Star, Swift, Wagon-R, Estilo and Sedan Dzire, SX4 and Vitara. The company is a subsidiary of Suzuki Motor Corporation of Japan which held 56.21 percent stake in Maruti Suzuki as on 31st December 2017. Maruti Suzuki is the winner of automobile manufacturers in India. It holds about 53 % of the market share in the Indian Passenger car market.

Objective of the study:

- To analyzed the financial performance of Maruti Suzuki Ltd.
- To check the profitability of the Maruti Suzuki Ltd.
- To provide suggestions for improving profitability position of the Maruti Suzuki Ltd.

Scope:

The study is based on the accounting information of Maruti Suzuki Ltd. For the study, the period of ten years from 2010-11 to 2019-20 is covered for analyzing the financial statement like income statement and balance sheet. The scope of the study involves the various factors that affect the profitability of the organization. The data of the past ten years are taken into account for the study. The performance is compared within those period.

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આચાર્યદેવ માણિક્ય સૂરીશ્વર રચિત શ્રીયશોધર ચરિતમ્ નો પ્રથમ સર્ગ - એક દૃષ્ટિ¹ડૉ. વિજયાનન્દ જી . પટેલⁱⁱ

ભારતીય ભૂભાગમાં સંસ્કૃત સાહિત્યમાં જૈન સાહિત્ય નો ફાળો અનેક ઘણો રહ્યો છે. અને તેમાંય અર્વાચીન રચનાઓમાં વિવિધ સાહિત્ય પ્રકારો સાથે જૈન સાહિત્ય રચાતું રહ્યું છે. જૈન આચાર્યોની રચનાઓ એ એક વિશેષ માર્ગ ઉભો કર્યો છે. જેને આધારે જૈન ધર્મના પ્રચાર-પ્રસાર ને વૈશ્વિક ફલક પર મૂકી શકાય છે. પ્રસ્તુત અભ્યાસમાં અમે વટગચ્છીય આચાર્ય દેવ શ્રીમાણિક્ય સુરેશ્વરજીએ રચેલાં શ્રી યશોધર ચરિત્રના પ્રથમ સર્ગ ઉપર એક દ્રષ્ટિ કરવાનો ઉપક્રમ સ્વીકાર્યો છે.

નવસર્જિત શ્રી યશોધર ચરિત્રના લોકાર્પણના દિવસે તેના વિશેષ જ બે વાતો કહેવાનો આ પ્રસંગ વિશેષ જ બની રહે તેવો છે. મહાકાવ્યનું શીર્ષક સૂચવે છે તે પ્રમાણે રાજા યશોધર નું ચરિત્ર વર્ણવ્યાનું કવિશ્રીને અભિપ્રેત છે. સંસ્કૃતસાહિત્યના અન્યકાવ્યોમાં " ચરિત " શબ્દ શીર્ષકમાં ગુંથવાની પ્રણાલિ કવિ એ સ્વીકારી છે તદુપરાંત જૈન પરંપરામાં ચરિત કાવ્યો રચવાની એક વિશેષ શૈલી પણ છે. મહાકાવ્યના શાસ્ત્રીય લક્ષણોને આદર આપીને કવિએ કથાનક રૂપે 'સદાશ્રયસદ્' રાજાનું ચરિત વર્ણવ્યું છે.

(૨)

પ્રથમ સર્ગમાં કુલ ૭૭ શ્લોકો આવેલાં છે પ્રથમ બે મંગલ શ્લોકો શાલિની છન્દમાં રચાયાં છે, જેમાં 'જૈની શક્તિ' વાગ્દેવીની સ્તુતિ કરવામાં આવી છે. સમગ્ર સર્ગમાં વિવિધ છંદો નો પ્રયોગ થયો છે. જેથી " સંપૂર્ણ સર્ગ એક જ છંદમાં હોવો જોઈએ." એ નિયમ જાળવવામાં આવ્યો નથી. દ્રુત વિલંબિત, વંશસ્થ, વસન્તતિલકા, શાદૂલવિક્રીડિત વગેરે (આ મહાકાવ્યનાં પ્રલશનની વિશેષતા ગણવી શકાય એવી બાબત એ છે કે તેમાં શ્લોકના અન્તે જ - તે છંદ ની ઓળખ આપતી ટૂંકી સંજ્ઞા આપી છે.)

તૃતીય પદ્યમાં કવિ વિશ્વને પાલન કરનાર રાજા યશોધર ના ચરિત ને વર્ણવવાનો ઉદ્દેશ સન્તોની સમક્ષ રજૂ કરે છે. સાતમા પદ્ય સુધી મુનિ લખે છે કે આ ચરિત હરિભદ્ર શ્રી એ કહ્યું અને ત્યારબાદ તેઓ પુણ્યશ્લોક બન્યા હતા. આ એવું ચરિત છે, જેને સાંભળીને માનવમાત્ર શુદ્ધિપવિત્રતાને પ્રાપ્ત કરે છે. અને આ-

જીવન પવિત્ર બની જાય છે. નવરાત્રમાં તેનું વિશેષ વાંચન થવું જોઈએ એવો અભિપ્રાય મુનિશ્રીએ શ્લોકમાં અભિવ્યક્ત કર્યો છે.ⁱⁱⁱ

આગળ કાવ્યની કથાની શરૂઆત કરતાં કવિ વર્ણવે છે કે જંબુદ્વીપ માં આવેલા ભરતખંડમાં માગધદેશના રાજપુર નગરમાં મારિદત્ત નામનો ઓજસ્વીતા નો ભંડાર એવો રાજા શાસન કરતો હતો. જે જિનેશ્વરથી તદ્દન અપરિચિત હતો.તેણે સ્વપ્નમાં પણ જિનેશ્વર નું નામ શ્રવણ કર્યું ન હતું. પૂર્વજન્મના સંસ્કારોના અભાવમાં અજ્ઞાનરૂપી તમસ્ થી તેની આંખો ઢંકાયેલી હતી .તે પોતાની કુળદેવી ચંડમારિની પૂજા આરાધના કરતો હતો. આ સ્થળે કવિએ ૧૨થી ૧૫ એમ પાંચ પદ્યોમાં ચંડમારિ દેવી નાં સ્થાનક મંદિરનું ખૂબ જ ભયાવહ વર્ણન કર્યું છે. નગરની દક્ષિણ બાજુ માં આ મંદિર આવેલું હતું .જે અસ્થિઓની દિવાલો, ભેંસના શિંગડાઓના તોરણ વાળું હતું. ભારંડક પક્ષીના ઈંડા નો કળશ, વ્યાઘ્રપૃચ્છમાંથી નિર્મિત ધ્વજ, હાડકાઓ,શંખ, ચૂર્ણથી વ્યાપ્ત હતું,ગજચર્મનું પાથરણું,હાથીની સૂંઢની હાથીદાંતના સ્તંભો ભૂંડ વગેરેના લોહીથી લાલ બનેલું ,ગજનીરૂપી તીક્ષ્ણ પુષ્પો અને જીહ્વારૂપી પલ્લવોથી શોભતું તે મંદિર હતું.^{iv}આ મંદિરમાં રુદ્રસ્વરૂપા કાત્યાયની કાલી ચંડમારિ દેવીનો નિવાસ હતો. વિખેરાયેલા વાળવાળું અને અગ્નિની જ્વાળાઓ જેવું પીળું મસ્તક, લાંબા દન્ત અને લાલ લાલ ગોળ આંખોવાળું, સાપ જેવા કાનવાળું, જોતાં જ ડરી જવાય એવું તેનું મુખ હતું. ખરેખરા અર્થમાં સાક્ષાત્ ચંડિકા નું વર્ણન કવિએ કર્યું છે.^v જેને વાંચતા જોતાં જ ડરી જવાય, એવી યમની જાણે બહેન હોય તેવી,તેના નિવાસમાં દીપકો પણ ચિતા માંથી નિર્માયેલા હતાં મદિરાથી સતત સ્નાન થતું હોવાથી સખત દુર્ગંધ મારતું હતું. ધતુરાના કણોના અર્ક આને વિશિષ્ટ પુષ્પોથી તેની આરાધના ફરવા માટે મારીદત્ત આવે છે.

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નોમના દિવસે મહોત્સવ ઉજવવામાં આવે છે જેમાં અભક્ષ્યભોજિ અને પાન કરનાર, અગમ્ય સ્થળોએ જનારાઓ દ્વારા બધાં કુળો એક કરી દેવામાં આવ્યાહતાં .શાકિની-ડાકિનીઓ જેમાં મુખ્ય છે એવી યોગિનીઓ આ ઉત્સવમાં આવી છે. જેમાં રક્ત ,માંસ, વિચિત્ર નૃત્ય, સુરતરત, હાહામટ, વગેરે કરનારા, કામદેવથી પીડાયેલાં, સ્ત્રીવેશધારી નપુસંકો,સમગ્ર સંસારના શત્રુઓને આવવા માટે રાજાએ આદેશ કર્યો. નભચર, જળચર, ભૂચર, એવા સર્વજીવોના યુગલોને તે રાજા એક લાખ કરવા ઉઘિત થયો.

આ પછી કવિ ૩૦ થી ૩૫ શ્લોકોમાં દ્રુતવિલંબિત છંદમાં રચાયેલાં કહે છે કે રાજાએ સમગ્ર નગરજનોને આ મહોત્સવમાં આવવાની આજ્ઞાને અવળા માર્ગ વાળી સમગ્ર નગરને ડુબાડે છે. એવું કહે છે પોપટથી શરૂ કરીને મગર, રોહીતમાછલી, જળફૂકડી, તમામ પ્રાણીઓથી ભરાયેલી તે સભા જાણે યમ સભા હોય

એવી ભયંકર લાગતી હતી . ૧૬ વર્ષીય યુવાનોથી મોટી ઉંમરના માણસો પણ પોતાના કુટુંબ સહિત ત્યાં રાજાજાને લીધે ઉપસ્થિત થયા હતાં.

આવા ભયંકર વાતાવરણમાં રાજાના દુર્દેવથી પ્રેરાયેલાં ગણધરગુરુ સ્વામી ત્યાં આવી પહોંચે છે કવિએ અહીં ૩૭ થી ૪૨ શ્લોકોમાં તેમનું ઉપમા રૂપક અલંકારોથી ભરપુર વર્ણન કર્યું છે. તપસ્વીઓથી વીંટયેલા તેઓ જાણે નક્ષત્રો થી વીંટળાયેલા ચંદ્રમા જેવા લાગતા હતા. જાણે કે ચાલતું તીર્થ જ હોય,જેને પુરુષરૂપ ધારણ કર્યું છે એવી સરસ્વતી જેવા કુતૂહલને કારણે જાણે સાક્ષાત્ વાયસ્પતિ પૃથ્વી પર આવ્યાં હોય તેવા, વિનય શીખવવા જાણે સાક્ષાત અંગી બનેલો સામદેવ હોય તેવા પુરાણા મુનિઓએ જેને આદ્યપુરુષ કહ્યો છે તે રાજા જ મુનિમાં આવી ગયા હોય તેવા તે મુનિને વનદેવીએ મુદ્ગસ્વરમાં આ વનમાં રહેવા જણાવ્યું. છતાં તે મુનિએ સન્માનને છોડીને પોતાના તપસ્વીઓ સાથે જાણે કે શંકટ પોતાના ગણો સાથે રહે તેમ શ્મશાનમાં રહેવા લાગ્યા.

ત્યારબાદ ગુરૂની આજ્ઞાથી એક યુવતી સાથે યુવાન શિષ્ય ભિક્ષારન માટે નગરમાં ગયો. તેમને જોઈને આશ્ચર્ય ચકિત સૈનિકો એ બલપૂર્વક નમેને રાજાની આજ્ઞા થી ચોરની જેમ કેદ કર્યા. આ સ્થળે

(૪)

શિષ્યની સાથે રહેલી ભિક્ષુણી ગભરાઈ ગઈ. આથી તેને આશ્વાસન આપતો શિષ્ય કહે છે -" આ લોકો દુર્દેવના ભયને જાણતાં નથી". અહીં કવિએ પદ્યમય કાવ્ય હોવા છતાં નાના-નાના બોધ પ્રદ વાક્યો વાચક નાં હૃદયને સ્પર્શી જાય એવા સંવાદાત્મક રીતે પ પયોજ્યાં છે. " હરીશ થઈશ નહીં, મદમત્ત હાથીથી કચડાયેલી નલિનીની જેમ પીડાયેલી તું હતાશ થઈશ નહીં, મૃત્યુના ભયને છોડી દે વીતરાગને યાદ કર, કા.કે સુતિક લોકો ભાગ્યથી પોતાના મૃત્યુને જુએ છે 'હું ' તારો કોઈ નથી અને 'તું ' મારી કોઈ નથી. પરલોકનો માર્ગ દરેક દેહધારી માટે જુદો હોય છે ગુરુ જ આવા સમયે શરણ બને છે મારા કોપરૂપી અગ્નિમાં આ ત્રણેય જગત પ્રથમ આહુતિ બને એવા છે. પરંતુ સુધી પુરુષો કોપ નથી કરતા. આ રીતે આશ્વાસન આપવામાં આવતા શાંત બનેલી તે તપસ્વીની આંખો લુછીને ગદ્ ગદ્ ધ્વનિ માં બોલે છે. "તમારા તપના પ્રભાવને હું જાણું છું અને મારા પ્રત્યેની તમારી કરુણાને પણ . શસ્ત્રના પ્રહારથી પશુનુ મૃત્યુ થાય એમ આપણાં મૃત્યુના ભયથી હું વિહવળ નથી બની. આવા લૌકિક અપમાનના કષ્ટને કારણે સ્ત્રી સ્વભાવને વશ હું રડું છું." આવું દુષ્કર્મ કરવા છતાં તે અનૃણી તેને હર્ષ થાય છે . તેનો હું મનથી પણ શોક કરતી નથી . શું તમે આવું જ્ઞાન આપ્યું છે, શું તમે શત્રુઓના શોક મોહ વગેરે ત્યજી દીધાં છે.

આ રીતે તે બંને તપસ્વીઓનો સંવાદ સાંભળીને ધરતી ધુજવા લાગી અને ધૂળથી આખું આકાશ છવાયી ગયું. સૂર્ય પણ ચક્રિત થઈને બની ગયો. જડ પદાર્થો પણ ગભરાટને કારણે ધૂજવા લાગ્યા લતાઓ ડાળીઓને વળગી ગઈ હાહાકાર મચી ગયો . આહ પાપી , નિષ્કરુણ, નાસ્તિક લોકો ના ભક્ત ,એવા મારી દત્ત: નું રસનડમાં કેમ જતો નથી. સ્ત્રી ,બાળ,વૃદ્ધ પશુઓનો ઘાતક એવો તું રાજા બનવાને લાયક નથી અભૂતપૂર્વ કહું છું હે નગરજનો સળગતા અગ્નિમાં પ્રવેશ જાવ આ જીવવા યોગ્ય સમય નથી આ રીતે આક્રોશપૂર્ણ વાણી નગરજનો સામે વેદના શિષ્યોએ લોકોમાં રાજા તરફ આક્રોશ નો જન્મ કરાવ્યો જેનાથી દિશાઓ પણ સહસા અંધકારમય બની જવા લાગી.

આ રીતે જાણે શિષ્ટ સંસ્કૃત મહાકાવ્યની શરુઆત થતી હોય તેવી રીતે જ કવિએ શ્રી યશોધર ચરિત્રમ્ મહાકાવ્યનો પ્રથમ સર્ગ રચ્યો છે નવસર્જકો માટે કદાચ પ્રેરણાદાયી બની રહેશે એમ લાગે છે.

પાદટીપ

¹ વીર શાસનમ્ અમદાવાદ તથા ભાષા-સાહિત્ય ભવન, ગુજરાત યુનિવર્સિટી, અમદાવાદના સંયુક્ત ઉપક્રમે તા.૩૧/૧૦/૨૦૧૪,૧,૨,/૧૧/૨૦૧૪ ના દિવસો દરમિયાન યોજાયેલ જૈન સાહિત્ય વિષયક રાષ્ટ્રીય સેમિનારમાં પ્રસ્તુત કરવામાં આવેલો લેખ.

ⁱⁱ અધ્યક્ષ, સંસ્કૃત વિભાગ ભવન્સ કોલેજ, ડાકોર. ૩૮૮૨૨૫.

ⁱⁱⁱ કરામલકવદ્ વિશ્વં કલયન્ કેવલાશ્રિયા|અચિન્ત્યમાહાત્મ્યનિધિ:સુવિધિર્બોધયેસ્તુવ:||૧||

उन्मीलन्ती शङ्खकुन्दावता नानारुपाबाढमप्राप्तपारा। विश्वव्यापिनी कापि नित्या जैनी शक्तिः पातु वागीश्वरी वः ॥२॥ वटगच्छीयाचार्यदेवश्रीमाणिक्यसूरीश्वर विरचितं श्रीयशोधरचरितम् ...

^{iv} एजन, पृ.३२६

^v एजन, पृ.३२६

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છે યથાશક્તિ. ડૉ.રાધાકૃષ્ણન્ પણ સ્વીકારે છે કે અહીં અનેક કાળની અનેક કર્તાઓની કૃતિઓનો સમાવેશ થયેલો છે જે કેવળ ભારતના ઇતિહાસનો આકરગ્રન્થ જ નથી વિરાટશબ્દના તમામ અર્થો અહીં સાર્થક થઈ જાય છે. જેણે આ જ સુધીના અનેક કવિઓને પ્રેરણા પૂરી પાડી છે, પાડતો રહેશે. આથી જ તેને વિશ્વસાહિત્યમાં સનાતન અને શાશ્વત સ્થાન મળ્યું છે.

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ડૉ.વિજયાનન્દ જી.પટેલ
અધ્યક્ષ, સંસ્કૃતવિભાગ, ભવન્સકોલેજ

સૌ પ્રથમ ઇ.સ.1937 માં શ્રી એમ.કૃષ્ણમાચાર્યજીએ History of Classical Sanskrit Literature નામના ગ્રન્થમાં સંસ્કૃત સાહિત્યના આદિથી પોતાના સમય સુધીના સંસ્કૃત સાહિત્યનો પરિચય આપવાનો પ્રશસ્ય પ્રયત્ન કર્યો છે.

નાટકં ધ્યાતવૃત્તં સ્યાત્ કે પ્રધ્યાતવસ્તુવિષયક' એવા નાટ્યશાસ્ત્રીય નિયમને વશ થઈને સંસ્કૃત સાહિત્યના કવિઓ – નાટ્યકારોને પોતાના નાટક – રૂપકના કથાનકમાટે ઇતિહાસગ્રન્થો, લોકકથાઓ કે રામાયણ-મહાભારત, ભાગવત જેવા ગ્રન્થોનો આધાર લેવો પડ્યો છે. આ રીતે જોવા જઈએ તો સમગ્ર સંસ્કૃતસાહિત્ય જગતનાં કવિઓએ ઉપર્યુક્ત ગ્રન્થોનો આશ્રય લીધો છે જ. પ્રસ્તુત અભ્યાસમાં આપણે માત્ર નાટકના ક્ષેત્રે મહાભારતનું પ્રદાન ચકાસવાનો પ્રયાસ કરીશું. મહાભારતના રચયિતા વ્યાસમુનિ સ્વયં મહાભારતની વ્યુત્પત્તિ આપતાં કહે છે – ભારતત્વાચ્ચ મહાભારતમુચ્યતે।² જે ગ્રન્થની વિશાળતા સૂચવે છે તેમજ આદિપર્વમાં આવ્યાં પદ્યમાં સમગ્ર ભારતીયસાહિત્ય જગતમાટે ઉપકારક બનશે એવા વિચારો પડેલાં છે –

ધર્મે દ્યયર્થે ચ કામે ચ મોક્ષે ચ ભરતર્ષભા યદિહાસ્તિ તદન્યત્ર યન્નેહાસ્તિ ન તુ ક્વચિત્।।
અર્થાત્ “ ધર્મ, અર્થ, કામ અને મોક્ષને લગતું અંહી જે કંઈ છે તે બીજે ક્યાંક હશે પણ જ્ અંહી નથી તે બીજે ક્યાંય નથી” બાણભદ્ર પણ વ્યાસજી માટે કવિ વધસે³ અર્થાત્ ‘ કવિઓના જન્મદાતા’ એવો શબ્દ વાપરે છે. આ સિવાય યન્ન ભારતે તન્ન ભારત્ અર્થાત્ જે “ મહાભારતમાં નથી તે ભારતદેશમાં પણ નથી.” વિદ્વાનોના આવાં અંજલિપૂર્ણ શબ્દો પણ મહાભારત સાહિત્યજગતમાટે કેટલું ઉપજીવી બન્યું છે તે પૂરવાર કરે છે.

નાટ્યશાસ્ત્રના પ્રધ્યાત વસ્તુવિષય ને સમજાવતા અભિનવભારતીમાં આ પ્રમાણે લખ્યું છે – ‘કારણકે નાટક પ્રસિદ્ધિનાં ઉપજીવન કરવાવાળી કલ્પનામાંથી નિષ્પન્ન વસ્તુની સમ્ભાવના કરાય છે’. આથી ઇતિહાસ વગેરે પ્રમાણોથી સિદ્ધવસ્તુવાળા નાટકનું લક્ષણ બાંધવામાં આચાર્ય ભરતે મહાભારત વગેરે જેવા પ્રખ્યાત ગ્રન્થોમાંથી વસ્તુ પસન્દ કરવાનો નિયમ કર્યો છે. તેમાંય કોઈક અપ્રસિદ્ધ કથા હોઈ શકે છે, આથી એવી શક્યતાના નિવારણમાટે પ્રધ્યાતોદાત્ત નાયક⁴ કહી દીધું છે. આ પ્રસિદ્ધિ ત્રણ પ્રકારની હોઈ શકે છે જેમકે, , ‘અમુક દેશમાં અમુક વ્યક્તિએ આવું કર્યું.’ તો અંહી કાર્ય અને સ્થળ મહત્વનાં બને છે. જેમકે, માલવ કે પાંચાલ દેશ હોય ત્યાં અમુક કાર્યો જ પ્રસિદ્ધ હોય. વત્સરાજનું વર્ણન કૌશામ્બી સિવાય અન્ય પ્રદેશમાં રસહીન જણાય. આમ નામથી અને પ્રદેશથી પ્રસિદ્ધિ અને ત્રીજી પ્રસિદ્ધિ ઉદાત્ત એટલે વીરરસને યોગ્ય નાયકનું ગ્રહણ થાય છે.

આ રીતે જોઈએ તો પ્રસિદ્ધ કથાઓ અને પ્રસિદ્ધ નાયકો આપવાનો શ્રેય મહાભારતને ફાળે જાય છે. રામાયણ – મહાભારત અને ભાગવતને સાહિત્યજગતના ઉપજીવ્ય માનવામાં આવ્યાં છતાં ત્રણેયમાં થોડોક ભેદ જણાય છે. રામાયણ એ મહાકાવ્ય છે, મહાભારત ઇતિહાસ ગ્રન્થ છે અને ભાગવત એ પુરાણ છે.

મહાભારતમાં વ્યાસજીએ આધ્યાત્મિક તથા વ્યાવહારિક રૂપનું પાંડવો – કૌરવોની કથા દ્વારા નિરૂપણ કર્યું છે. જેનાથી માનવને સદાચારનું સૌમ્ય શિક્ષણ આપતો એક વિરાટ વિશ્વકોશ મળ્યો છે જેમાં એક લાખ શ્લોકો મળે છે આથી તેને ‘શતસાહસ્રસંહિતા’ પણ કહેવામાં આવે છે. અઢાર પર્વોમાં તેના વિભાગ પાંડવામાં આવ્યાં છે. જેમકે, 1.આદિપર્વ 2.સભાપર્વ 3.વનપર્વ 4.વિરાટપર્વ 5.ઉદ્યોગપર્વ 6.ભીષ્મપર્વ 7.દ્રોણપર્વ 8.કર્ણપર્વ 9.શલ્યપર્વ 10.સૌપ્તિકપર્વ 11.સ્રીપર્વ 12.શાન્તિપર્વ 13.અનુશાસનપર્વ 14.અશ્વમેધપર્વ 15.આશ્રમવાસીપર્વ 16.મૌસલપર્વ 17.મહાપ્રસ્થાનપર્વ 18.સ્વર્ગારોહણપર્વ. જેમાં ચન્દ્રવંશના વિસ્તૃત વર્ણનમાં કૌરવો - પાંડવોનાં ઉત્પત્તિથી લઈને સ્વર્ગારોહણ સુધીનું કથાનક છે.

આચાર્ય બલદેવ ઉપાધ્યાયજી કહે છે કે “વ્યાસજીએ મહાભારતમાં યુદ્ધોનું એવું વર્ણન કર્યું છે કે ક્યાંય પુનરુક્તિ થતી નથી ઉપરાન્ત માત્ર યુદ્ધોનું જ નહીં પરન્તુ તે દ્વારા ભૌતિક જીવનની નિસ્સારતા દર્શાવીને પ્રાણીઓને મોક્ષપ્રાપ્તિ માટે યત્ન કરવા પ્રેરણા આપે છે.”⁵

સંસ્કૃત સાહિત્યના કવિકુલગુરુ કાલિદાસે મહાભારતના શકુન્તલોપાખ્યાન (આદિપર્વ અધ્યાય71)માંથી પ્રેરણા લઈને વિશ્વપ્રસિદ્ધ અભિજ્ઞાનશાકુન્તલમ્ ની રચના કરી છે એ તો સર્વવિદિત છે. આદિકવિ વાલ્મીકિ ગણાય એમ આદિનાટ્યકાર ભાસે તો 6 રૂપકોનું આધારભૂત કથાનક મહાભારતમાંથી પસન્દ કર્યું છે. જો કે ભાસે મહાભારતમાં આવેલાં ઉપેક્ષિત પાત્રોનું ઊર્ધ્વીકરણ કરવાનો ઉપક્રમ સ્વીકાર્યો છે એ આપણાંથી ભૂલાય નથી, જેમકે કર્ણભારમાં કર્ણ, ઊરુભંગમાં દૂર્યોધન, મધ્યમવ્યાયોગમાં હિડિમ્બા.અન્ય ત્રણ દૂતવાક્ય, દૂતઘટોત્કચ અને પંચરાત્ર રૂપકો પણ મહાભારતને અધીન છે. જોકે મહાભારતનાં ઉપેક્ષિત પાત્રોનું ઊર્ધ્વીકરણ કરવા જતાં મહાભારતનાં મુખ્ય પાત્રોને અન્યાય થતો પણ જોવા મળે છે.⁶ હરિવંશ પર્વને આધારે બાલચરિતની રચના પણ ધ્યાનાસ્પદ છે.

સંસ્કૃત નાટ્યશાસ્ત્રીઓનાં વિચારમાં જેને શાસ્ત્રીય નિયમોથી પરિપૂર્ણ માનવામાં આવે છે તેવું ઇ.સ.750ના સમયમાં થયેલાં ભદ્રનારાયણનું ‘વેણીસંહાર’ એક ઉત્તમ નાટક છે. તેનો આધાર મહાભારતમાં આવતી દ્રૌપદીની એક પ્રતિજ્ઞા છે. મહાભારતની એ નાનકડી ઘટના પણ એક છ અંકના નાટકનું સ્વરૂપ પામી શકે એવી શક્તિ ધરાવે છે.

કાવ્યશાસ્ત્રમાં પાંડિત્યપૂર્ણ ગ્રન્થ કાવ્યમીમાંસા આપનાર રાજશેખરે બાલભારત અથવા પ્રચંડપાંડવ નાટક રચ્યું છે પરન્તુ દુર્ભાગ્યવશ આપણને તેના આરમ્ભના બે અંક જ મળે છે.

મહાભારતે કેટલાંક લઘુનાટકો માટે પણ પ્રેરણા પૂરી પાડી છે.દક્ષિણના ત્રાવણકોરના કવિ કુલશેખરવર્મા (ઇ.સ.895) એ ‘સુભદ્રા-ધનંજય’ રચ્યું છે.હેમચન્દ્રાચાર્યના શિષ્ય રામચન્દ્રએ ‘યાદવાભ્યુદય’, ‘નલવિલાસ’, ‘સત્યહરિશ્ચન્દ્ર’, ‘નિર્ભયભીમ (વ્યાયોગ)’ જેવા રૂપકો રચ્યાં છે.

આ રીતે જોઈએ તો મહાભારત એ માત્ર નાટકો જ નહીં સમગ્ર સાહિત્યજગત માટે ઉપજીવ્ય બન્યો છે.વિન્ડરનિટ્ઝ કહે છે તેમ “ The Mahabharata is not one poetic production at all, but rather a whole literature.”⁷ અર્થાત્ ‘સમગ્ર સાહિત્ય છે જેમાં ધર્મ,નીતિ,સદાચાર,માનવીય સમ્બન્ધો કે ઇતિહાસને લગતી ઘટનાઓ કે વિવિધ માનવીય સ્વભાવમાં રહેલું વૈવિધ્ય ,તે સમયના રાજકીય અને ધાર્મિક ખ્યાલો, અલંકારો, છન્દ, રસ, શૈલી વગેરેનો અદ્ભૂત ખજાનો છે.’ તેમાંથી જેને જે જોઈએ તે લઈ શકે

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A STUDY ON PROFITABILITY, LIQUIDITY AND SOLVENCY THROUGH TRADITIONAL RATIOS AND CASH FLOW RATIOS OF SELECTED I. T. COMPANIES IN INDIA

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ABSTRACT

This study examines the profitability, liquidity and solvency of selected I. T. Companies in India by employing traditional ratio and cash flow ratios over the period of five years. By using the financial statements of selected companies, independent sample t – test was used for analysis of hypothesis. The financial performance of selected companies was measured using profitability, liquidity and solvency ratio. Result of study shows that traditional ratios are slightly higher when compared to cash flow based ratios. In some cases, significant differences between both ratios existed and in some cases no significant difference was noticed.

Keywords:- Traditional Ratios, Cash Flow Ratios, Profitability Ratios, Liquidity Ratios and Solvency Ratios.

1. INTRODUCTION

Traditionally, financial ratios were used as a means of analysis of financial statements. While today, ratios calculated from the statement of cash flow has drawn the attention of various stakeholders and academicians. Financial ratios are obtained considering Income Statement and Balance Sheet while cash flow ratios are derived from cash flow statement. Cash is the most liquid asset of the business, therefore, many practitioners believe that financial performance analysis of any sector should be done by considering statement of cash flow (SCF). Till today, statement of cash flow has been used for managerial purpose for controlling cash but it has neither been used for financial performance analysis. This study drives away this limitation and focuses on financial performance analysis by using all three financial statements; Income Statement, Balance Sheet and Cash Flow Statement. Performance analysis is made by using profitability ratios, liquidity ratios and solvency ratios.

1.1 Traditional Ratios

The ratios which are computed using Balance sheet and Income Statement are known as Traditional Ratios.

1.2 Cash Flow Ratios

The ratios which are computed by taking particulars from cash flow statement and some particulars from income statement or balance sheet, such ratios are Cash Flow Based Ratios.

1.3 Profitability Ratios

Profitability Ratios are the financial scale used by the corporate stakeholders to analyze the ability of firm to earn profit. Higher the profitability ratio, higher will be the value of shareholders. Traditional profitability ratios include Gross Profit Ratio, Operating Profit Ratio, Net Profit Ratio, Return On Investments, Return On Capital Employed, Earning Per Share etc. Cash Flow Profitability Ratios include Cash to Sales Ratio, Cash to Assets Ratio, Cash to Equity Ratio, Cash to Capital employed etc.

1.4 Liquidity Ratios



A dual-response naphthalene-armed calix[4]arene based fluorescence receptor for Zr(IV) and Fe(II) via Ligand to metal charge transfer

Pinkesh G. Sutariya ^a  , Heni Soni ^a, Sahaj A. Gandhi ^b, Saurabh S. Soni ^c, Jyoti Prasad ^c

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Highlights

- A new and dual-response calix[4]arene based fluorescence sensor for recognition of Zr⁴⁺ and Fe²⁺ by emission spectra via LMCT
- Binding confirmation is supported by UV-visible study, ESI-MS, ¹H- NMR, FT-IR, PXRD study and cyclic voltammetry.
- The quantum mechanical study of the ligand C4N and ligand C4N with the metal cations (Fe²⁺ and Zr⁴⁺) has been performed using Gaussian 09W software.

Abstract

A new and dual-response calix[4]arene based fluorescence sensor; 5, 11, 17, 23-tetra t-butyl-25, 26, 27, 28 tetracarboxylate naphthalene calix [4]arene (C4N) has been designed and developed for the recognition of Zr⁴⁺ and Fe²⁺. The fairly linear range of C4N for Zr⁴⁺ and Fe²⁺ is 5–205 nM and 5–210 nM respectively. This sensor exhibits favourable selectivity towards Zr⁴⁺ and Fe²⁺ with the detection limit of 1.98 nM and 4.05 nM respectively via ligand to metal charge transfer (LMCT). This interesting supramolecular architecture has been exploited by UV–vis spectroscopy, voltammetry, electrospray ionization mass spectroscopy (ESI-MS), powder x-ray diffraction (PXRD) study and fourier transform infrared spectroscopy (FT-IR). The binding constant of C4N with Zr⁴⁺ and Fe²⁺ is calculated to be $8.139 \times 10^8 \text{ M}^{-1}$ and $8.430 \times 10^8 \text{ M}^{-1}$ respectively. The quantum mechanical study of C4N, C4N: Zr⁴⁺ and C4N: Fe²⁺ has been implemented using Gaussian 09 W



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IMPACT OF CORONA VIRUS ON EDUCATION

DR. VIRAL. H. KACHHIA PATEL *

PROF. (DR.) HETAL A. DESAI **

Abstract: COVID-19 was observed first in China and within a short period it spread all over the world. The COVID-19 is a pandemic disease caused by a virus that affects the education system of both developing and developed countries. Education is the pillar of every country's development. In the world, most schools, colleges, and universities are closed to control the spread of the COVID-19. The school closure brings difficulties for students, families, and teachers. So, distance learning is a solution to continue the education system. The entire world gets calmed. The World Health Organization (WHO) declare this corona virus an epidemic. Almost all the countries have taken various steps to prevent from this virus. Everything was stopped. People were stucked at the respective places. Globally almost all the countries have declared the complete lockdown. The emergency services were open during this period. Government has postponed / cancels the scheduled activities. Universities, Schools, Colleges, Institutes were closed during this lockdown period. Many of the institution have their syllabus completion and examinations were pending. Schooling has greatest impact on this lockdown. In this research, researcher trying to find the various factors of impact of education.

Keywords: COVID-19, Epidemic, Google Classroom, Zoom, Online Teaching, Lockdown, Education, etc.

Introduction: Corona virus which was named as COVID-19 by World Health Organization (WHO). The virus was first identified in Wuhan City of China. The virus spread in all the countries within a short period. Following are some of the symptoms of corona virus.

Sr.No.	Symptoms
1	A general feeling of being unwell
2	Sore throat
3	Headache
4	Cough
5	Fever

According to the World Health Organization (WHO), a novel corona virus is a new strain that has not been previously identified in humans. Viruses are named based on their genetic structure to facilitate the development of diagnostic tests, vaccines and medicines. Almost all the countries have declared lockdown in their respective countries. The educational systems worldwide were disturbed, which leads to the total closures of schools, universities and colleges. Till 21 April 2020, nearly 1.723 billion learners have been affected due to closure of schools, universities and colleges globally.

Objectives of the Study: The basic and important objectives of the study are as follows;

1. To analyse the COVID-19 impact on education.
2. To analyse the perception of male and female respondents towards online study during COVID-19.

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LOW-DIMENSIONAL SOLIDS AND MOLECULAR CRYSTALS

Synthesis, crystallographic investigation, DFT studies and Hirshfeld surface analysis of novel bromo hydrazine derivative: (E)-2-(2-bromo-4,5-dimethoxybenzilidene)-1-(4,5-dimethoxy-2-methylphenyl)-1-hydroxyhydrazine

Khushbu K. Lalvani , Bhavesh N. Socha , Urmila H. Patel, Sahaj Gandhi ,
Mohammed Dawood Alalawy , V. M. Barot & ...show all

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Abstract

A novel bromo hydrazine derivative: (E)-2-(2-bromo-4,5-dimethoxybenzilidene)-1-(4,5-dimethoxy-2-methylphenyl)-1-hydroxyhydrazine is synthesized and characterized by

MICROFINANCE: A STUDY ON SEWA BANK

DR. VIRAL. H. KACHHIA PATEL*

ABSTRACTS:

The biggest accomplishment in microfinance in the past 10 years has been that the poor and low income women have led the way, shown that they are the world's best bankers. They built their bank balance through tiny savings from their hard earned money and use financial services to build income, assets and raise the quality of life of their family. Present study makes an endeavor to understand and evaluate the savings behavior of the poor women. Savings is relevant for poor people as it is their first step in the process of coming out of poverty by breaking through the vicious cycle and giving themselves a chance to move ahead in life.

Key Words: Microfinance, Poor Women, Savings, SEWA

INRODUCTION

Many people in the developing world are often denied access to banking and financial services. India is no exception. Constrained by State Directives the number of banking institutions in India is higher than that of other countries with a similar income per head. Access to financial services is limited to the formal sector. In developing countries the presence of informal sector is omnipresent. This is due partly to the cultural inheritance of a country (which may differ from one country to the other) and partly to recent innovative break-through brought about by specific needs of commoditization .However, despite their strength (mainly flexibility, low transaction cost), these alternative financial services do not meet the requirements of the population .Based on small and short term transaction, often oriented towards social consumption or, in the case of micro enterprises, circulating capital, they ,don't meet all financial needs, especially in terms of investments .In addition here again the poorest may be excluded from these services.

The concept of Microfinance have emerged broadly under three categories:

SEWA BANK

Historical background of SEWA Bank::

SEWA bank is an offshoot of the SEWA movement and an important part of a family of SEWA organization: the union has its members also as the account holders of the bank. SEWA Bank was established in 1974 with the initiative of 4,000 SEWA members, whom of each contributed 10 rupees as share capital. All low-income working women, the founding shareholders wanted a secure place to deposit savings as well as a source for loans. They also wanted their own bank in which they would not be made to feel inferior and unwanted as they had been by commercial banks. The Bank is a registered cooperative bank subject to the banking laws of the Reserve Bank of India and the cooperative banking laws of Gujarat State. SEWA Bank (Shri Mahila SEWA Sahkari Bank) was established in 1974 by 4,000 members of the Self –employed Women's Association (SEWA) a trade union that first started organizing self employed women in the slums of Ahmedabad in the state of Gujarat, but now has over 9,00,000 members in Ahmedabad , rural Gujarat and elsewhere in India. SEWA bank is in fact a cooperative bank owned by 60,000 women holding over Rs 3.3 crore (33 million) in shares, who elect a board of 15 directors each representing members in a different trade. SEWA bank, has always focused more on saving products than micro loans and it had had more than 3, 00,000 depositors at the end of 2007(Refer table 2.1). It is obvious that within such a context SEWA Bank is not just a provider of micro credit; its mission is to assist poor self employed women in their overall struggle to live a life of dignity, while providing at least a minimum level of social and economic security. It was set up because commercial banks were not helpful in dealing with illiterate, poor women unfamiliar with banking procedures. While the women found those procedures complex and inflexible, with significant collateral requirement and inconvenient hours of business.

GROWTH PROFILE OF THE SEWA BANK

Year	2019-20	2018-19	2017-18	2016-17	2015-16
Number of shares	96921	88167	82327	67883	67756
Share Capital(Rs.)	755	605	530	453	400

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Member	448434	371108	361639	328636	318594
Total deposits(Rs.)	11411	11126	11948	10505	9615
Working Capital	17671	16184	16494	14568	12919
No. of loans & Advances accounts	7042	5622	5169	4665	4400
Profit	161	94	83	79	52
Dividend %	9	9	9	9	9
Net NPA %	2.40	1.63	3.03	4.98	4.12

Profile of the Members:

The average monthly income of a member of SEWA Bank is Rs.1,500 where as the average income of her whole family of 5-7 members is Rs3,000 per month. The urban female depositors of SEWA Bank are engaged in three predominant activities:

- Hawkers and vendors, for example, vegetable and fruit vendors, small shopkeepers, vendors of flowers, fish, household goods and clothes.
- Home based workers like weavers, carpenters and others artisans which also include bidi rollers, garment workers and women who process agricultural produce.
- Manual laborers and service providers like agricultural laborers', constructions workers, head loaders, papers pickers and domestic workers.
- Small producers like artisans, agricultural farmers.

Given that 93 per cent of the workforce in India is in the informal or unorganized sector a union for such workers, especially women; it was deemed essential to fight for their economic rights. However, economic rights are not sufficient in themselves. Women members also needed access to services, from health – care through financial services to business development.

Objectives Of Sewa Bank:

- Providing facilities for savings and deposits, thus, inculcating thrift in the women, managing their savings and ensuring safe custody of the cash the women receive as loans
- Providing credit to further the productive, economic and income generating activities of the poor and self employed.
- Extending technical and management assistance in production, procuring, designing and sale of goods and services. This includes services to buy raw materials, equipment, tools and establishing direct links with industries, wholesalers and procedures from where the borrowers buy rags, scrap iron, wood, vessels, bamboo, yarn, vegetables, and waste paper; guidance in marketing their goods; accounting services to members individually and to women's groups.
- Providing facilities to rescue their jewellery from pawnbrokers and private moneylenders and giving loans against jewellery.
- Adopting procedures and designing schemes suitable to poor self-employed women, like collecting daily savings from their places of business or houses, or providing saving boxes and giving training and assistance in understanding banking procedures.

SAVING SCHEMES OFFERED BY SEWA BANK

Jivan Asha	Daily Savings Scheme
Chinta Nivaran Yojana	Worry Riddance Scheme
Mangal Prasang Yojana	Special Occasion Scheme
Ghar Fund Yojana	House Fund Scheme
Kishori Gold Yojana	Buying Gold Scheme

-Scheme I, which is currently being withdrawn, still has deposits of Rs 22.750 held by 91 women. The scheme provides cover for the women life (both accident and natural deaths). Each member deposited Rs 250 as a fixed deposits, which is withdraw able in any given year.

-**Scheme 2** has deposits of Rs 6.53,150, held by 200 men. The scheme is for husbands of members and covers death due to accidental and natural causes. The deposit required for this policy is Rs 200 shortly to be increased to Rs 650.

-**Scheme 3** has deposits totalling Rs13,280,350 held by 21,319 women. This scheme provides comprehensive insurance coverage including natural and accidental death (up to age 58) loss of property or equipment due to fire, theft, cyclone, earthquake and so on (up to age 70); health insurance and maternity benefits. The deposit required for this was initially Rs 500 and is being increased to Rs.1000/-.

-**Scheme 4** has deposits of Rs.3,345,700 held by 3,639 women. This scheme is the same as the third, except that both the woman and her husband are covered for the same risks listed under Scheme 3. The deposit needed was initially Rs. 700 but has been raised to Rs. 1,150, and is to be increased further to Rs. 1650.

RESEARCH METHODOLOGY

OBJECTIVE OF THE STUDY

The main objectives of this study are:

First, to make an inquiry into the savings behavior of the women in poverty, while doing so it also makes an effort to capture the perspective of these women and their access and control over their own savings and incomes.

Second, it is to understand the microfinance concepts, its framework and structure.

Third, it is to seek clarifications with regard to the savings behaviours of the clients of MF in India.

HYPOTHESIS

Microfinance Interventions are making inroads in the sector for improving the financial behaviour of the poor. In order to understand the financial behaviour of the poor women of MF sector, the first component, savings, of the financial behaviour must be understood and evaluated. Because, it is the only that can help them to come out of the debt trap and help them in capital formation. SEWA Bank a pioneering and premier institution of MF was chosen to see if their women members are responding favorably in their savings behaviour. Hypothesis is that the savings behaviour of the members of the SEWA Bank has positively improved.

APPROACH AND METHODOLOGY

Sample Design:

The study uses a combination of random and purposive sampling procedure to select the sample or respondent, who is the member of SEWA Bank. In the first step, three areas namely Ahmedabad, Anand and villages of Anand district are purposively selected for the study so as to consider urban, semi urban and rural population of the Gujarat state. Using proportional allocation method 30 members each was selected for this study.

Therefore to study the impact on financial behavior for savings of the members would be more effective.

Data Collection Process:

The sources of data are primary data and secondary data. Secondary data is collected from annual reports and web sites of SEWA and NABARD. Primary data is collected and tabulated on the basis of personal in-depth interview.

Occupation:

About 20 working members of surveyed households are working in factories and offices in various capacities. 30 workers fall in category of daily wage & their income depend on number of working man days. 10 women in surveyed areas are working as maid servants. Business category includes business on regular basis and having permanent establishment which include owning grocery shops, automobile garage, ironing, hair saloon etc. 3 women of working population of surveyed area are self-employed having their own small business.

OCCUPATION CATEGORIES

Sr. No.	Occupation	Persons
1	Monthly Wage (Service)	27
2	Daily Wager	30
3	House Wife (Home Maker)	11
4	House Servant	10
5	Business	3
6	Petty Business	8
7	Animal Husbandry	1
8	Piece Rate Worker (Job Work)	1
9	Unemployed	9

(Source: Primary survey)

The unemployed category, 9 persons during the survey, also includes those women members who are not economically employed and are financially dependent on their spouses or other members of their family, these women members voiced out their desire to learn and begin with some home-based activity which can fetch them some income.

Household Monthly Income:

The income level decides capacity to save of the households. The table 42 given below describes the various income categories & number of household in each category. During the survey, in the surveyed area earnings of maximum households were between Rs. 2000 to Rs. 5000 in a month.

MONTHLY INCOME LEVEL OF HOUSEHOLD

Sr. No	Monthly Income (Rs.)	Household
1	Up to 1000	01
2	1001 to 2000	09
3	2001 to 3000	17
4	3001 to 4000	15
5	4001 to 5000	21
6	5001 to 6000	12
7	6001 to 7000	08
8	7001 to 8000	04
9	8001 to 9000	05
10	9001 and above	09

(Source: Primary survey)

The figures above show the monthly household income which also includes the income earned by the women member as many of them were financially dependent on their spouses or other family members. The income source is not only from the occupations which are permanent in nature but also from those which can be defined as seasonal businesses which are taken up during few months. Nearly 38 households have income more than Rs. 6000 a month which is quite feasible due to availability of earning opportunities in Ahmedabad however, the number of households having such income is comparatively much less in Anand. As also the capacity to save of those having income over Rs. 5000 is more.

Monthly Income of Women Members:

Comparison of total household income and income of women shows vast difference. Out of the total sample of 100, only 45 women are earning members in their families. Only 26 of them earn up to Rs 1000.

MONTHLY INCOME OF WORKING WOMEN

Sr. No	Income	Women
1	Up to 1000	45
2	1001 to 2000	33
3	2001 to 3000	12
4	3001 to 4000	04
5	4001 to 5000	03
6	5001 to 6000	0
7	6001 to 7000	0
8	7001 to 8000	0
9	8001 to 9000	0
10	9001 and above	0

(Source: - primary survey)

Initial Decision to Start Savings:

This section becomes very important to understand the dynamics in a household and the extent of decision making power of a woman member in her household. However, it should be noted that if the decision is joint, it may not completely negate the decision making power of a woman member.

DECISION TO START SAVING

Sr. No.	Decision By	HHS
1	Yourself	45
2	Spouse	03
3	Joint Decision by Spouse and yourself	39

4	Joint decision – Family Members	11
5	Any Other	00
6	No Response	02

(Source: Primary survey)

The statistics are very interesting giving us figures favorable to women members, with 45 of households, essentially, women members taking the initial decision to start saving. This is followed by 39 households where the woman member and her spouse have made joint decision to start saving but this will certainly not negate the decision by the woman member. There are cases, around 11 households where all the family members take joint decision to start saving. 3 of households are such where only the spouse of the woman member has taken individual decision to save. However, it has to be again noted here that the cases taken here are even those where the husband individually saves somewhere else. It would be interesting to note that those women, 45 persons, who save individually, out of these, 78 percent of women are those who are working and earn an income for their living. The income of majority of women, around 97 percent, who save individually is to a maximum of Rs. 5000 a month. There are very few women, only 3 percent who earn more than Rs. 5000 a month. The table below shows the various income categories of women members who have taken initial decision to save individually.

Mode of Saving:

47 women are saving jointly with their spouse and 39 are saving individually. 14 are saving jointly with family members.

MODE OF SAVING

Sr. No	Saving	HHS
1	Separately – Individually	39
2	Jointly with spouse	47
3	Jointly with family members	14
4	Any other	00

(Source: Primary survey)

Place of Saving:

This survey was organized with the help of SEWA Bank employees, “Bank Saathis” and sample households were selected from SEWA Bank members list and introduced by them. 90 women interviewed are saving with Self Help Groups and 4 percent women are saving with SHG as well as in the house. As far as savings in the house is concerned, there are a few members who save at home in a “matki” which works as a piggy bank for them. They save for a specific period, say 6 months or an year and they may save for a purpose say either for a festival or some specific reason.

PLACE OF SAVING

Sr. No	Place	HHS
1	Self Help Group (SHG)	90
2	In house & SHG	4
3	Bank	1
4	SHG & Bank	2
5	In house	2
6	Employer	1
7	Any Other	0

(Source: Primary survey)

There are also some interesting views of the women members on savings. According to them, savings is not money left after expenses. Savings is also money put into expenses to build relationships since they feel it will come back to them when they need it. Many of them do not keep savings at home, rather they loan it to friends or relatives in need and take it back when they are in need of money. According to them, in this way social bonds are being built and money is saved since money that is kept in hand can be easily spent.

Although, it was also discovered during the informal discussion that around 50.0 percent of women members save in the various savings groups, including SEWA only to get loan. It was observed during the survey, that poor women do have the capacity to save provided their savings are collected or they are able to deposit their savings on a timely and regular basis else the money that they keep aside for savings gets spent.

Decision on Place of Saving:

The decision on the place of savings is as important as the initial decision to begin savings. 51 households are such where the husband and wife have decided jointly on the place to save. 38 households are such where the women member herself took the decision on where to save. 11 households were such where all the family

members took joint decision on the place of saving. The joint decision with spouse or family members would not mean that the women do not have a voice. There are many women members earning an income who do make the decision on their own on decision to save and the source of saving.

DECISION ON PLACE OF SAVING

Sr. No	Decision maker	HHS
1	Yourself	38
2	Spouse	4
3	Joint decision – with spouse	51
4	Joint decision – family member	11

(Source: Primary survey)

Monthly Saving Pattern:

This section inquires about the respondents' ability to save on a monthly basis. The table below shows that majority of households, 93 households, are able to save up to Rs. 200 a month. Within this, 74 of households are being able to save only up to Rs. 100 a month. 5 households are able to save between Rs. 200 to Rs. 500 and only a small number of households, 2, are able to save more than Rs. 500 a month.

The monthly savings are done essentially with the SEWA Co-operative bank and other savings groups. The savings which are done up to Rs. 200 a month are mainly done by those whose earnings are below Rs. 7000 a month. The women earning more have the capacity to save more and they do so in many other formal sources besides SEWA and that is the reason why a very small percentage of households saving more than Rs. 500 reflected in the table below.

MONTHLY SAVING PATTERN

Sr. No	SAVING (Rs.)	HHS
1	1 to 100	75
2	101 to 200	18
3	201 to 300	2
4	301 to 400	2
5	401 to 500	1
6	501 and above	2

(Source : Primary Source)

Average Saving In Last Twelve Months:

To understand fluctuation in saving, an attempt was made to accumulate data on savings done during the last twelve months from each respondent. The table below shows that 42 household were able to save between Rs. 51 to 100 per month in last one year. 18 were able to save between Rs. 100 to 150 per month. A good amount of households, 14 were able to save more Rs. 251 per month.

AVERAGE MONTHLY SAVING IN LAST ONE YEAR

Sr. No	SAVING (Rs.)	HHS
1	1 to 50	14
2	51 to 100	42
3	101 to 150	18
4	151 to 200	8
5	201 to 250	14
6	251 and above	4

(Source: Primary Survey)

Fluctuation in monthly income is also one of the reasons for fluctuation in savings done on a monthly basis. Maximum workers in surveyed are daily wager or involve in petty business where they do not get a fixed amount which results in the fluctuation in saving.

Awareness Level and Total Amount Saved:

This was an important inquiry which was made to find out whether the members were aware about the savings amount which they have made so far. There were very few people, 18 women were aware about their savings amount and majority, 80 respondents were not aware about total amount saved.

In fact, the study team had to look into the respondent's pass book to see the figures of their saved amount. On the total amount saved till date, 55 households have been able save upto Rs. 1000 and 22 have saved between Rs. 1000 to 2000 it is to be noted here that these respondents had started saving since less than 2 years. There is once again a very small, 14 respondents who have saved Rs 3000 and above.

AWARENESS ON TOTAL SAVING

Sr. No	Amount	HHS
1	1 to 1000	55
2	1001 to 2000	22
3	2001 to 3000	9
4	3001 and above	14

Decision Maker on Utilization of Saving Amount:

This section looked into the decision maker for utilization of savings amount to which, 55 households said that they take joint decision on the utilization. There are 30 households wherein the women member would take the decision on utilization herself. However, it needs to be noted that joint decision does not necessarily mean that the voice of the woman is not heard as the decisions are also taken on priority basis and whether it is a joint family or nuclear, these decisions would always be need based.

DECISIONS ON UTILISATION OF SAVING

Sr. No	Decision Maker	HHS
1	Yourself	31
2	Spouse	2
3	Joint decision with spouse	55
4	Joint decision with family members	12

Problems in Saving and Reasons:

Since savings was done with an effort by the respondents, they were asked whether they faced any problem in saving from their income. 46 responded they are facing problems in savings. The possible reason for this came out in the informal discussion & through survey and are listed in the table below.

51 percent responded that low income and fluctuation in income as one of the major reasons for their irregularities in saving and 33 percent responded that expenditure on health emergencies are responsible for irregular saving. 15 percent responded that due to high household expenditure they are not able to save regularly. It is mainly due to the routine fluctuation in income due to the unexpected expenses that they are unable to save or save on a regular basis.

PROBLEM IN SAVING

Sr. No	Reasons	HHS (%)
1	Low Income	51
2	High Household Expenditure	15
3	Expenditure on Health Emergencies	33
4	Natural Disasters	11

(Source: Primary survey)

CONCLUSION:

Microfinance has again demonstrated that its impact goes beyond providing individuals with access to capital; it also helped to protect, diversify and increase their sources of income and assets that enable them to make their way out of poverty. Microfinance is being largely routed through women, as they are believed to be more responsible, this intervention has indeed helped them to build and own financial, social and human assets. This has given them space to enhance their negotiating abilities and develop confidence. Understanding the lives of the poor woman in terms of their understanding and acceptance of savings, amongst other things, building assets is important for poor people as it is the basis for economic security. Access to appropriate financial products and services, along with financial skills to manage these resources will, and are key to the process of asset accumulation and the role of financial literacy become crucial at this point.

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CUSTOMER RELATIONSHIP MANAGEMENT: A STUDY OF HERO
HONDA TWO WHEELER IN ANAND DISTRICT, GUJARAT

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Abstracts:

CRM stands for Customer Relationship Management. Mahatma Gandhi propounded the importance of customer and he pointed that the customer is not a hurdle or an outsider but an important person, an asset and a part of an enterprise. It is an opportunity for an enterprise to serve him. The objective behind the CRM is to improve their relationships and to build a long lasting relationship, the process deals with the use of technology so as to organize and run the existing business processes. It also points the marketing activities, customer service. CRM also involves an enterprise to find, acquire, attract the new customer while to retain the old one. Retaining diminishes the marketing cost.

Key Words: CRM, Hero Honda, Satisfaction, Customer, Sales and Services.

Introduction: - Customer Relationship Management [CRM] is one of the most important thing and customer's problems are solve in this service. It is the powerfully tool of the management. Sweeny Group defined, CRM as "All the tools technologies and procedures to manage improve or facilitate sales, support and related interactions with customers, prospects and business partners throughout the enterprise. In other words CRM is a process which highlights some organization strategies for the purpose to improve the loyalty and hence the corporate profitability. "Here, with the help of CRM, management can know the experience of customers about the We have also tried to evaluate a mode of relationship based buying

which refers to those motivate of the customers. The CRM is depends upon the customers loyalty and their lifelong goodwill or equity. CRM is the understanding of this segment relationship and the help of customer. The biggest management challenge in the new millennium of liberalization and globalization for a business is to serve and maintain good relationship with the king - the customer. In the past, producers took their customers for granted because at these time customers were not demanding nor had many alternatives sources of supply or supplies, since has was a passive customer, the product dictated terms and had little customer. But today, there is radical transformation; the changing business environment is

characterized by economic liberalization, increasing competition, high consumer choice, enlightened and demanding customer, more emphasis on quality and value of purchase. All these changes have made today's producer sniff from traditional marketing to modern marketing. Here we are taking up the case of Hero Honda Motors Ltd. As to how they implemented their CRM programmes and what success they got from them.

2. Objectives of the Study:

The main objectives of the study are as follows:-

- To study the role of customer relationship management in post-sales maintenance needs of two wheeler industry.
- To study the factors influence the consumer to select Honda Two Wheeler.
- To know the popular model of Honda Two Wheeler.
- To study about the sources of awareness to buy Honda Two Wheeler.
- To find the problems faced by the consumers with the Honda Two Wheeler.
- To study what impact customer relationship management has on the satisfaction of Honda Two Wheeler.
- To study what impact customer relationship management has on the satisfaction of Honda Two Wheeler users.

Hypotheses:

H1: Use of customer relationship management has an impact on getting the new customers for after sales service.

H2: Use of customer relationship management is highly significant in

enhancing the satisfaction level of customers

H3: Availability of company authorised after sales service is significant to increase the company sales.

Research Methodology: It consists of Sources of data, Research design, Sampling Plan, Research Area etc.

Data Sources: The study is based on both primary and secondary data.

Primary Data: Primary data is collected from the customers of Hero Honda motors through Telephonic interview, Questionnaires.

➤ **Research approach:** Survey method

Research instrument: Personal Interview, Telephonic interview, Questionnaires

Sampling Plan:

➤ **Sampling unit:** Customers of Hero Honda bikes, Anand district, Gujarat.

➤ **Sample size:** 400

➤ **Sampling method:** It refers how sampling units are selected.

○ **Types of sampling** – Non Probability Sampling.

➤ **Method of Non Probability Sampling:** Convenience Sampling

➤ **Secondary Data:** Secondary data is collected from the company records publications of National & International Journals, Text Books, Newspapers and Websites.

3. Seven Guidelines for Effective CRM

1. Changes in process, people, and technology should be evaluated and the business impact should be quantified and prioritize supported by a solid business case and tangible return on investment.

2. Develop and an iterative and incremental approach focused on addressing the highest value

opportunities first think big star small, and deliver results quickly.

3. Align to corporate strategy, ensuring that CRM initiatives are in complete alignment with the organization overall business goals.

4. Measure the effectiveness of your initiatives and create accountability for customer and results. What are your baseline performances and what key performance indicators will you measure to know that you are getting results from your CRM Initiatives?

5. Create an overall CRM vision to the company develop and communicate the CRM vision to the organization and key constituents, such as customer, employees and partners.

6. Secure the commitment and buy in of senior management to the overall project vision, project objectives and measurement of the sustain the future state of organizational readiness.

7. Recognize the organization change and motivations required to active full benefits, and create the action plans to achieve and sustain the future stat of organizational readiness. These seven types will not guarantee your CRM success. However, if your organization has a plan to address these areas you will improve your chances of success and reap the rewards of profitable, customer focused strategies.

4.1 Company profile: “Hero” is the brand name used by the Munjal brothers in the year 1956 with the flagship company Hero Cycles. The joint venture between India's Hero Group and Honda Motor Company, Japan. During the 80s, Hero Honda became the first company in India to prove that it was possible to drive a

vehicle without polluting the roads. The company introduced new generation motorcycles that set industry benchmarks for fuel thrift and low emission. A legendary 'Fill it - Shut it - Forget it' campaign captured the imagination of commuters across India, and Hero Honda sold millions of bikes purely on the commitment of increased mileage. Hero Honda has consistently grown at double digits since inception; and today, every second motorcycle sold in the country is a Hero Honda. Every 30 seconds, someone in India buys Hero Honda's top -selling motorcycle - Splendor. Hero Honda bikes currently roll out from two globally benchmarked manufacturing facilities based at Dharuhera and Gurgaon in Haryana. These plants together are capable of churning out 3.9 million bikes per year. A third state of the art manufacturing facility at Hardwar in Uttranchal will soon be commissioned to cope with sustained customer demand.

Hero Honda's extensive sales and service network now spans over 3000 customer touch points. These comprise a mix of dealerships, service and spare points, spare parts stockists and authorized representatives of dealers located across different geographies. Hero Honda values its relationship with customers. Its unique CRM initiative - Hero Honda Passport Program, one of the largest programs of this kind in the world, has over 3 million members on its roster. The program has not only helped Hero Honda understand its customers and deliver value at different price points, but has also created a

loyal community of brand ambassadors.

The success of Hero Honda has not been smooth sailing through calm waters. The company has been through a lot storms and rough weather. Over dependence on the Japanese partner Honda for R&D paralyzed the company more than once. Many a times HHML had to sit on the side lines while its competitors roared past. Thus, the lack of R&D make the company a cripple, especially when the competition began to intensify in the late 90s and other foreign joint ventures (like Kawasaki and Yamaha) helped their local companies mount a credible assault on Hero Honda.

4.2 Growth: Hero Honda experienced great growth throughout its early days. The Munjal family started a modest business of bicycle components. By 2002 Hero Group had sold 86 million bicycles producing 16000 bicycles a day. Today Hero Honda has an assembly line of nine different models of motorcycles available. It holds the record for most popular bike in the world by sales for Its Splendor model. Hero Honda Motors Limited was established in joint venture with Honda Motors of Japan in 1984, to manufacture motorcycles. It is currently the largest producer of Two Wheelers in the world. It sold 3 million bikes in the year 2005-2006. Recently it has also entered in scooter manufacturing, with its model PLEASURE mainly aimed at girls. HUNK is the latest offering from the HHML stable.

4.3 Just-in-Time Manufacturing: The Hero Group through the Hero Cycles Division was the

first to introduce the concept of just-in-time manufacturing. The Group boasts of superb operational efficiencies. Every assembly line worker operates two machines simultaneously to save time and improve productivity. The fact that most of the machines are either developed or fabricated in-house, has resulted in low inventory levels. In Hero Cycles Limited, the just-in-time inventory principle has been working since the beginning of production in the unit. This is the Japanese style of production. In India, Hero is probably the only company to have mastered the art of the just-in-time inventory principle.

4.4 Supplier Relationship Management: With the Indian motorcycle market opening up to overseas competitors and more fierce domestic competition, HHML decided to create a single Integrated IT system to integrate business operations such as product planning, materials resource planning, financials and sales and distribution. It was also looking to automate its internal supply chain, reduce overall costs, and create a transparent information system that would help managers make decisions more quickly. To do all this it teamed up with SAP in 2000 to implement the system, and went live in February 2001. HHMLs IT team along with SAP technicians implemented an entire Supplier Relationship Management (SRM) system for a better connected and transparent business process. HHML was among the first in India to setup the MySAP SRM version 3.0 and ended up with a Computer Associates Intelligent

Enterprise Award in the manufacturing vertical category.

4.5 Dealer Relationship Management: At the same time, for effective dealer relationship management, HHML has brought innovation through application of progressive technology into its authorized dealerships. To reduce the amount of manual labour involved in repairs and maintenance, it has introduced pneumatic tools to replace hand tools, while hydraulic ramps now position bikes for easy inspection. It has also installed automatic ventilation systems in repair shops to remove engine exhaust fumes.

4.6 Labour Relationship Management: A striking feature within HHML in particular and the Hero Group in general is the commitment and dedication of the workers. Efficient labour relationship management is evident since there is no organized labour union and family members of employees find ready employment within Hero. The philosophy with regard to labour management is Hero is growing, grow with Hero. When it comes to workers benefits, the Hero Group is known for providing facilities, further ahead of the industry norms. Long before other companies did so, Hero was giving its employees a uniform allowance, as well as House Rent Allowance (HRA) and Leave Travel Allowance (LTA). Extra benefits took the form of medical check-ups, not just for workers, but also for the immediate family members. An enlightened labour policy and a keen sense of fair play have contributed to the tremendous sense of dedication and

commitment on the part of everyone associated with Hero.

4.7 Employee Relationship Management: Effective employee relationship management is also evident. The vice president of Information Systems at HHML believes in exposing people to IT for personal benefit to heighten its acceptance. To this end, he has set up a touch-screen kiosk at HHML that addresses HR queries for employees on matters such as salary and leaves. Clearly, the importance behind understanding employee needs and creating a user-friendly environment is taken into account. Such strategic decisions are crucial in retaining and attracting talent at HHML.

4.8 Customer Relationship Management: Some of the CRM initiatives of the Hero Honda Motorcycles Ltd. are:

- The Hero Honda passport programme.
- SBI-Hero Honda Credit Card.
- Implementation of mySAP CRM.

4.2 The Hero Honda passport programme: The Hero Honda passport programme is one of the first of its kind in India. The company has secured over 1 million members in the last three years with the Passport Programme, which involves offering members a small card/booklet that looks like the Indian passport, complete with "visa" stamps for points, similar to those offered by credit card companies and airlines. The only difference in this programme is that the member need not always spend money to obtain points. With the passport programme, each time a Hero Honda customer visits a service centre, he gets points and depending

on the profile submitted by the customer, he gets benefits like free passes to a cricket match sponsored by the company.

In 2001, HHML was the first two-wheeler company to initiate a customer relationship programme, christened the Hero Honda Passport Programme. It was a massive success, signing up over half a million customers within eight months. Under the programme, a customer gets a passport booklet at a nominal fee. This entitles owners to all the benefits, such as free insurance cover, prizes, and tickets for events sponsored by the company and other discounts for three years. More than that, a Passport member can accumulate points for each transaction at the company's retail outlets. Every referral that they generate earns bonus points which can be redeemed at regular intervals for gifts or discounts. Today, Passport is the largest CRM initiative in India with close to 3 million members. In tune with effective management of relationships, it has given HHML a huge connects with consumers and a opportunity to peep into their minds. HHML has fine-tuned its process for finding out just what a diversified customer base across the length and breadth of India wants. It does this by regularly conducting vast market surveys that question up to 70,000 people at a time. Then the specific customer requirements and preferences are translated by the marketing and R&D teams into basic specifications, which are sent on to Honda's R&D group in Japan. Honda

comes up with a prototype design and HHML takes this back into the

market to sound out customers for possible further refinement, until a winning design is eventually arrived at for HHML to build. Through such effective management of customer relationships, confidence and trust are the two enduring values associated with the brand of Hero Honda. These values define the bond that Hero Honda establishes with customers cutting across geographic locations, income levels and market segments.

The reliability and durability of this relationship has resulted in positive word-of-mouth from satisfied customers, working to the brands advantage.

4.3 More Value added services: In tune with effective customer relationship management, HHML has come up with the fresh idea of mobile service workshops: a complete workshop incorporated into trucks that travel predetermined routes, visiting small towns and villages where existing customers reside. Customers are informed that a workshop will be coming, so that they don't have to travel hundreds of kilometres to an authorized workshop for servicing or repairs. These mobile workshops also double as sales outlets and spare-part distributors. The concept has been so successful that some of HHMLs largest distributors have adopted the idea and send out their own workshops to supplement HHMLs efforts. Another notable improvement on the customer front is that customers can wait in air-conditioned waiting rooms where TVs and water coolers have been installed, while in a few key dealerships, they can enjoy a cup of tea and surf the Internet in Hero

cyber cafes. In certain larger dealerships, customers can actually watch ongoing repairs through glass-fronted workshops. This gives customers more confidence in HHMLs service and support. After the emphasis paid by Hero Honda on the factors called 3S (Sales, Service and Spares), the company has now a fourth added to the list:

Safety. At select dealerships, a safety corner has been created, where the customer, who has come to take delivery of his bike, is explained the nuances of safe riding. The company plans to extend this concept to its entire dealer network.

4.4 Benefits of Passport Program to customers:

- 4 Winners of the Month Each Month, 4 Hero Honda Passport Programme Members get a chance to win 1 Hero Honda Splendor+ or Rs 40,000 each.

• SPECIAL PRIVILEGES ...ALL THE WAY

Special discounts on spares and free services for Hero Honda motorcycle along with attractive gifts at various milestones. This is company's way of making sure that every time customer come to showroom for servicing the motorcycle, they take away more than just the benefit of world class servicing in their automated workshops.

- **KEEPING IN TOUCH...ALL YEAR THROUGH** : An effort to be in constant touch with the customers through quarterly newsletter, "Suhana Safar". The newsletter gives an insider's view to the company, Hero Honda Motors Ltd. Along with the latest happenings in the HHPP family.

- **SPECIAL OFFERS:** From time to time exclusive offers for customers with the best brands in the country.

- **SPECIAL INVITATIONS:** For active members of the Hero Honda Passport Program the chance of being invited to special events like Musical nights, Movie screenings, Award shows, etc.

- **SECURITY FOR CUSTOMERS AND FAMILY:** The moment customers apply for Hero Honda Passport they are automatically covered for a free Rs.100, 000 Personal Accident Insurance policies for one year or for three years, as applicable.

REWARDS AND POINTS: All these amazing rewards and benefits come to the customer as they earn points in the Hero Honda Passport Programme. Once become a member, they earn points for a host of regular transactions that they conduct at their local Hero Honda authorized Dealership or Service Center. These include:

- Purchase of Hero Honda genuine spares

- Purchase of accessories

• Servicing of motorcycle Bonus points on :

- Free Service

- Paid Service

- Referrals i.e. recommending a friend to purchase a Hero Honda motorcycle

More Attractions:

- **Star Club and Treasured Rewards** This unique club has been introduced for those members who get their bikes serviced regularly from authorized Hero Honda Service Centres. The Star Club membership not only identifies the member as special for the HHPP family, but also brings in some added benefits like:

- 30% discount on labour
- 7.5% discount on spares, till the validity of the Passport

• **Treasured Reward:**

For Passport Programme members who have crossed the 1 lakh point mark in the Hero Honda Passport Programme.

The HHPP Treasured Rewards available at 8 prescribed milestones beginning from 1.25 lakh points and ending at 3 lakh points, with each milestone at a gap of 25,000 points. In other words, the milestones are placed at 1.25 lakhs, 1.5 lakhs and so on till 3 lakhs. Each time a member reaches a milestone a Motorcycle Privilege Voucher of Rs. 1250/- will be given to him. This voucher may be used to avail a discount on the purchase of a new Hero Honda motorcycle. This voucher is transferable and can be given to friends or relatives who may be planning to buy a new Hero Honda motorcycle.

4.6 Post CRM benefits:

After implementing the Passport Program across India the Hero Honda Motorcycles Ltd achieved instantaneous success. Over half a million customers signed up within eight months.

4.7 Some of benefits are summarized below:

- The company secured over 1 million members in the last three years.
- Recorded a 25-per cent increase in its net profits to Rs 581 crore and a 14-per cent higher turnover at Rs 5,195 crore within a year of launch of the passport programme.
- More satisfied customers (58%) than any other motorcycle brand in a survey conducted by Mckinsey in 2004.

• A clear and personalized record of customers which helped in planning more CRM activities in future for the customers.

• 30 % Reduction in overall advertising and promotion budget as a company target which was successfully achieved in 2005.

4.8 SBI-Hero Honda Credit Card:

Another customer service initiative launched jointly by Hero Honda and State Bank of India is a co-branded credit card. This time SBI Cards & Payment Services (SBI Card) has teamed up with Hero Honda Motors to offer the Hero Honda SBI Card, the first card for the two-wheeler industry in India. SBI card is said to be India's No 1 Visa card-issuer with over 11 lakh cards issued. The co-branded card is designed to strengthen Hero Honda's Passport Programme. The co-branded initiative will allow SBI Card to reach out to Hero Honda customers (a vast middle-class segment and possibly first-time users of credit cards). In the first phase of rollout, the co-branded card team, comprising executives from both Hero Honda and SBI Card, will target four cities - Delhi, Kolkata, Chennai and Pune. In the second phase 66 cities will be covered and in the third phase 100 cities.

5. Implementation of my SAP CRM:

In India's highly competitive motorcycle manufacturing sector, streamlined operations and effective business relations are essential. To improve information exchange with its many partners, Hero Honda decided to introduce leading-edge supplier and customer relationship management capabilities. "We wanted to enable

our dealers and suppliers to perform online transactions, “explains S.R. Balasubramanian (Bala), vice president of information systems at Hero Honda, “and this was something that our legacy solution could not support.”

Hero Honda opted for the powerful self-service features of mySAP™ Supplier Relationship Management (mySAP SRM), plus the e-commerce capabilities of mySAP Customer Relationship Management (mySAP CRM).

The project was completed in a record three months’ time in 2004. End-to-End Process Integration Hero Honda also implemented a customer portal, as a feature of mySAP CRM. With the two portals now in place the company benefits from end-to-end process integration. Dealers place their orders once a month; typically a dealer might order several hundred motorcycles, as well as spare parts so every Friday the company get orders in, consolidates them on Saturday, and on Monday morning suppliers are all receiving delivery schedules, directly from production planning system.”

Because the ordering process is now fully automated, Hero Honda saves approximately three days over the time it used to take to complete this process. That translates into an inventory savings of about 10%, which in turn translates into a substantial cost savings. And they know that the portal’s information is both accurate and up to the minute. Since the advance shipping notification created by the supplier is derived from the purchase order, the chance of a delivery mismatch with the order is almost zero.

The Company is more responsive than ever before to the dealers and other customers, thanks to mySAP SRM and mySAP CRM.

Faced with growing market demand and inefficiencies in its supplier and dealer order processes, HeroHonda – the world’s largest two-wheeler manufacturer – chose the mySAP™ Supplier Relationship Management (mySAP SRM) solution to integrate and automate its large and complex supply chain.

Key Challenges: Supplier order processing not well synchronized with production planning, proprietary supplier portal provided no transactions, only information.

Project Objectives:

- Speed up and automate supplier order processing
- Synchronize customer orders with supplier schedules

Solutions and Services :

- mySAP SRM
 - mySAP Customer Relationship Management (mySAP CRM) solution
- Implementation Highlights.

Three-month initial rollout covered 15 of the top 125 strategic suppliers; over 50 suppliers have since been covered

- Implementation included training Hero Honda suppliers as well as buyers
- Implementation Partner
SAP® Consulting
Existing Environment
mySAP ERP
Database
Oracle
Hardware
IBM
Operating System
AIX.

Key Benefits achieved after my SAP CRM implementation:

- Faster supply chain order processing – cut three days from old schedule
- Improved accuracy of deliveries from 98% to 100%
- Better responsiveness to customer changes
- Online communication with suppliers integrated and traceable
- Inventory planning improved –10% reductions in inventory carrying cost
- Transaction costs reduced because of fewer discrepancies to handle
- Overall lower process and transaction costs

6. AMBITIOUS PLANS FOR THE FUTURE: Building on the success of the project, Hero Honda is now planning arrange of new SAP initiatives. These include adding additional mySAP SRM and mySAP CRM functionality, implementing the SAP Strategic Enterprise Management application of mySAP ERP Financials and integrating it with SAP Business Information Warehouse (SAP BW), and rolling out SAP Enterprise Portal (SAP EP) to all users. The SAP BW component is provided in SAP Business Intelligence (SAP BI). SAP BI and SAP EP are components of the SAP NetWeaver™ platform.

Awards and Recognition for CRM:

- IndiaTimes Mindscape and Savile Row (A Forbes Group Venture) Loyalty Awards - “Customer and Brand Loyalty Award” in Automobile (two-wheeler) sector, 2008.
- Asian Retail Congress Award for Retail Excellence (Strategies and Solutions of business innovation and transformation) - Best Customer

Loyalty Program in Automobile category, 2008.

- “Most Trusted Company”, by TNS Voice of the Customer Awards 2006.
- Best in its class awards for each category by TNS Total Customer Satisfaction Awards 2006

CONCLUSION: It has been undoubtedly proven that retaining customers is the only way to succeed in business. The study on the customer’s satisfaction of Honda two wheelers among the customers within the Anand District was conducted in Gujarat. The study tries to reveal the factors responsible for preferring a particular brand. A study was useful in understanding the customer relationship management of Honda Bikes among a various customers launching new formulations can make Honda to the pioneer in many market segments. Honda was inferred that most customers of high-income group preferred the supply of Honda Bikes. About 70% of customers are aware of Honda Bikes. Most of the customers agree that Honda is best quality with reasonable price the attitude 50% of customers towards price of Honda Bikes is reasonable. But 10% of the customers are asking for improvement in the quality.

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THE LEVEL OF NON-PERFORMING ASSETS OF PUBLIC SECTOR
BANKS OF INDIA PRE AND POST DEMONETIZATION: A
COMPARATIVE STUDY

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Abstract:

The demonetisation was announced by the Hon'ble Prime Minister at 8 pm on November 8, 2016 and he was informed that Rs. 500 and Rs. 1000 notes will be closed. This means that the legal existence of 500- and 1000-rupee notes will come to an end. The demonetisation had a profound effect on the people and as a result retailer immediately stopped accepting Rs.500 and Rs.1000 currency notes. The Prime Minister said that the main reason for taking this step of demonisation was to stop corruption in the country, eradicate black money and stop funding of terrorist activities. But demonetization has caused a lot of trouble to the people. Because people had to stand in line to get new currency notes and deposit old currency notes in the account, besides having insufficient new currency notes, people also had difficulty in getting the necessities of daily life. The impact of demonetisation has been felt in every sector of the country, but the biggest impact has been seen in the banking sector. In this research paper, the researcher has tried to know how demonetisation has affected the banking sector, how demonetisation has affected the bank's non-performing assets.

Key-Words: Demonetisation, Non-Performing Assets

1.Introduction:

Our country is more than 70 years old and our country is still one of the developing countries due to its basic problems like poverty and unemployment. The year 2014 saw a revolution in the NDA government and the people of the country won by a landslide with the hope that the NDA government would do good in the country. The NDA government led by Prime Minister Narendra Modi has taken a lot of historic steps to instil confidence in the people that our country will be counted among the developed countries. Prime Minister Shri Narendra Modi has made a name for himself in his 6-7 years of tenure by taking historic decisions like GST, demonetisation, Article 370 and Ram Mandir, of which demonetisation is the most important decision taken by any Prime Minister of India. Demonetization has been carried

A COMPARATIVE STUDY ON LIQUIDITY ANALYSIS OF SELECTED PHARMACEUTICAL COMPANIES IN INDIA

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Abstract

Liquidity is considered to be important tool for determining health of any enterprise. Liquidity determines the entity's ability to pay obligation through current assets. The present paper focuses on analysis of liquidity by employing liquidity ratios like current ratio, quick ratio and interest coverage ratio of selected five pharmaceutical companies in India for period of ten years from 2011-12 to 2020-21. For present study, secondary data was collected through financial statements of Aarti Drugs, Divis Labs, Nectare Life Science, Everest Organics and Gujarat Themis. From the analysis of data, it was found that performance of Divis Labs was best in terms of current ratio and quick ratio while performance of Gujarat Themis was best in terms of interest coverage ratio. It was further analysed that there exists significant difference between liquidity ratio among selected pharmaceutical companies during period of study.

Keywords: Liquidity, Current Ratio, Quick Ratio, Interest Coverage Ratio

1. Introduction

Out of all sectors in India, Indian Pharmaceutical Sector is leading sector all over the world. India stands 3rd in the world in production of pharmaceutical products while 14th in world in terms of value. India, being largest producer of generic drugs in world exports more than 50% of production in other countries. The main advantages of pharmaceutical sector in India is cost efficient, support from government policies, increase in investments and economic drivers (Foundation, n.d.). Liquidity is the term which identifies the efficiency of company to converts its assets into cash without affecting market price. The present study focuses on liquidity analysis of selected five pharmaceutical companies like Aarti Drugs, Divis Labs, Nectare Life Science, Everest Organics and Gujarat Themis for period of ten years from 2011-12 to 2020-21. To analyse the liquidity, current ratio, quick ratio and interest coverage ratio was employed.

Current Ratio : Current ratio measures the company's ability to pay short term obligations of company within one year (Investopedia, n.d.).