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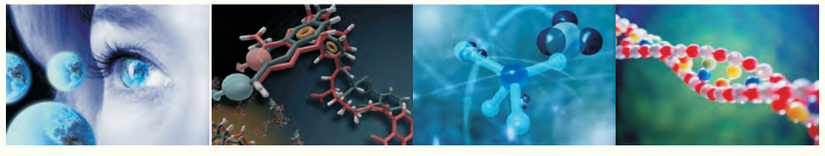

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VALIDATION OF AMMONIUM MOLYDATE AND NINHYDRIN IN SPECTROPHOTOMETRIC DETERMINATION OF CEFTAZIDIME IN PURE AND PHARMACEUTICAL FORMULATIONS

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Abstract : Two visible spectrophotometric methods were developed A and B for the determination of Ceftazidime (CTZ) in pure and pharmaceutical formulations based on the involves the condensation of the drug (CTZ) with Ammonium Molybdate, in presence of the Sulphuric acid and by intermolecular oxidation and reduction of the ninhydrin in the presence of the base by the hemi acetal group present in the drug. The coloured products exhibit absorption λmax at 710 nm and 560nm for methods A and B respectively. The proposed methods are applied to commercially available formulations and the results are statistically compared with those obtained by the UV reference method and validated by recovery studies. These methods offer the advantages of rapidity, simplicity and sensitivity and low cost without the need for expensive instrumentation and reagents.

KeyWords : Condensation,Regression Analysis,Inter molecular oxidation,hemi acetal

Introduction :

Ceftazidime (CTZ) (Fig.1) is a semisynthetic broad - spectrum, b- lactam antibiotic for vial or parenteral administration. It is pentahydrate of pyridinium,1-[[7-[[(2-amino-4thiazolyl) [(1-carboxy-1-methylethoxy)imino]-2-carboxy-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-en-3-yl]methyl]-, hydroxide, inner salt, [6R-[6(alpha), 7(beta)(Z)] (1), Methods based on HPLC (1-2), Fluorimetry (4), UV (5) and colorimetry (4,6-10) have been reported for its estimation. A few of the procedures based on colorimtry are found to be limited by relatively lack of sensitivity and selectivity. The authors have also searched for the applicability of chosen reagents AM (12-17), Ninhydrin (18-23) for the determination of the selected drug.None of the useful functional groups present in CTZ were exploited for the development of any method .Therefore the authors have made an attempt in this direction to develop suitable methods for the determination of the drug.

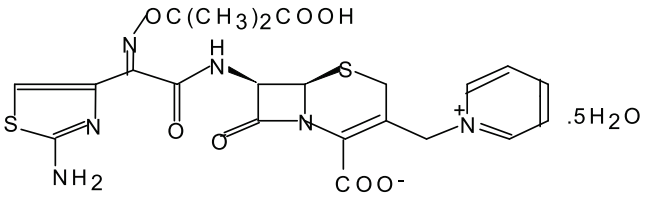

Fig.- 1 : Structure of Ceftazidime(CTZ)

Material and methods :

Instruments used:

A Systronics UV-Vis spectrophotometer 117 with 1cm matched quartz cells were used for all spectral and absorbance measurements. A systronics digital pH meter 361 was used for pH measurements.

Preparation of standard drug solutions:

The stock solution (1 mg/ml) of Ceftazidime (CTZ) was prepared by dissolving 100mg of it in 3 ml of 0.1 N NaOH and made up to 100ml with distilled water. A portion of

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REMOVAL OF HEAVY METALS FROM INDUSTRIAL EFFLUENTS BY EMPLOYING MODIFIED POLYMERS AND AGRO WASTE ABSORBENTS

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Abstract : The heavy metal affects the environment unsafe and human health due to their hazardous properties. By the way they create pollution in water sources also the toxicity of heavy metals is low and endless as metals are non biodegradable. In the present work, attempt was made to adsorb the heavy metals from industrial effluents by modified polymer and agro wastes. Thus maleic anhydride- glycerol-resacetophenone copolymer (MGR) [1] saw dust (SD) and Bagasse powder (BP) were treated with 5-chloromethyl-8-quinolinol (CQ).

The obtained products were designated as QMGR, QSD and QBP. A mixture of appropriate proportions of all three materials was prepared and used for a metal absorption study. The adsorption capacity of metal ions such as Fe^{+3}, Pb^{+2}, Cu^{+2}, Zn^{+2}, Cd^{+2}, Ni^{+2} and Co^{+2} from various industrial effluents by adsorbent mixture was performed by batch equilibrium method. The pH and sorption time parameters were used. The results show that the produced adsorbents have excellent sorption capacity for heavy metal from Industrial effluents.

Keywords : Heavy metal ions, Industrial effluents, copolymer, saw dust, bagasses, Batch equilibrium method and 8-quinolinol.

Introduction :

Heavy metals from Industrial effluents are most important environmental problem globally their toxicity to flora and fauna. Recovery of heavy metals from industrial effluents is necessity for recycling and conservation of essential metals (1,2). The intensification of industrial activity and environmental stress greatly contributes to the significant rise of heavy metal pollution in water resources making threats on terrestrial and aquatic life as these metal ions are non bio-degradable. So their toxicity is slow and endless. (3-7). The use of natural materials for heavy metal removal has become a concern globly because of their natural materials that are available in large quantities or certain waste from agricultural processes may have potential as low cost adsorbents, widely availablity and are ecofriendly (8,9). Several natural adsorbents or agricultural waste like rice husk,papaya wood, algee, coffee residue, coconut shell etc have been employed as a potential adsorption for heavy metal from industrial effluents in packet (10-18) The metals were mostly Pb^{+2}, Cu^{+2}, Ni^{+2}, Mn^{+2} and Fe^{+3} ions.

In the present communication the modified low cost unsaturated polyester saw dust and bagasses have been used to remove the heavy metal ions from industrial effluent by batch equilibrium method. In an earlier communication (1) we reported the initial work regarding the use of mixture of unsaturated polyester i.e. maleic anhydride-glycerol-resacetophenone copolymer (MGR), saw dust (SD) and bagasses powder (BP) for treatment of polluted water. In extension this work (1), the present work comprises use of 8-quinolinolyted MGR, SD and BP powders as absorbent for heavy metal removal from various industrial zones effluents. The work is scanned as follow:

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AN ELEGANT EXPLORATION OF A NANOCOMPOSITE BASED ON MULTI-DOPED ZIRCONIUM OXIDE-MULTIWALLED CARBON NANOTUBE (ZrO_2-MWCNT) AS A NANOCATALYST FOR THE PHOTODEGRADATION OF METHYLENE BLUE DYE.

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Abstract : The present work deals with the ultrasound assisted homogeneous co-precipitation strategy towards the fabrication of Ni, C, N, S doped ZrO_2-MWCNT nanocomposites. The resulting materials were characterized by TEM, SEM-EDAX, XRD, FT-IR technique. It is to be noted that the TEM image confirms the fabrication of multi-doped ZrO_2 NP's on nanotube surface, while SEM-EDAX, XRD, FT-IR techniques provides sound information about metal, non-metal doping. Thereafter the synthesized nano-composites were utilized in the photodegradation studies of methylene blue cationic dye and gratifyingly highest efficiency with 93% removal of the dye in 150 minutes by following first order rate kinetics $Ka = 13.10 \times 10^{-3}$ with $r^2 = 0.9901$ was observed. Furthermore, the reusability of the nano-composite has been assessed and the results of the study reveals that up to four catalytic cycle the catalysts works effectively without losing its efficacy.

Keywords : Photocatalysis, multi- walled carbon nanotubes, Methylene Blue degradation.

1. Introduction :

Water is one of the most important factor in the development of human society. Clean water decides the progress of certain societies in the word (1). But due to the rapid development in industrial sector developing countries like India are facing the scarcity of water. Various metal an nonmetal pollutants are introduced in to the water bodies and cause serious water pollution problem. Dyes amongst organic chemicals which are more harmful than others (2). More than hundred thousand types of dyes are synthesized per year an applied for various industrial applications, out of which 10-15% of these dye goes as a waste in surrounding water reservoirs (3). Dyes are highly carcinogenic and can cause serious disorders to the aquatic as well as terrestrial life (4). Adsorption, reverse osmosis, nano-filtration, ozone treatment and other variety of techniques have been employed but have some serious limitations such as low efficiency, high cost and secondary waste product generation (5).

To address the issue Advanced Oxidation Processes (AOP's) are utilized now days for complete elimination of organic dyes from the water (6). In AOP's photocatalysts are used to produce •OH, O2•- etc. in presence of light in the water which degrade the organic contaminant at rapid speed (7,8). AOP's must be used at large scale; to do so many modifications are need to done. Amongst them is rapid production of photocatalyst, high efficiency, and good reusability with stable arrangement to avoid leaching of material in aqueous solution (9). Many groups have developed photocatalyst originated from TiO_2 and ZnO systems but, many others are yet to be investigated (10). ZrO_2 is one of the strongest metal oxide as a photocatalyst by virtue of its low cost, nontoxicity, stability at high temperature, strength and re-usability (11). However, it has poor sensitivity due to its large band gap and rapid recombination of electron-hole pair (e^-/ h^+) (12). It has been found out that doping help to minimize the band gap in ZrO_2 system in which metal dopants improve morphology, crystallite size and generation of free electrons while non-metal due to interaction

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STUDIES OF NOVEL FUSED HETEROCYCLIC LIGANDS AND THEIR CHELATING PROPERTIES.

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Abstract: The novel heterocyclic ligand, 5-(3-(4-chlorophenyl)imidazo[2,1-b]thiazol-6-yl)-8-hydroxyquinoline (ITHQ) was synthesized by reaction between 2-amine-4-(4-chlorophenyl)thiazole with 5-chloroacetyl-8-hydroxy quinoline. The transition metal chelates of CITHQ ligand were prepared by using Cu^{+2}, Co^{+2}, Ni^{+2}, Mn^{+2} and Zn^{+2} metal ions. All the ligand and its metal chelates were characterized by elemental analysis, spectroscopic analysis, metal:ligand ratio and magnetic properties. The samples also were evaluated for antifungal activities.

Keywords : Thiazole,8-hydroxyquinoline,Metal Chelates, Spectroscopic analysis and Antifungal properties.

Intoduction:

Chelate forming reagents (CFRs) is important for the practicing analyst to have compilations of the most important reagents for specific applications (1-3). One of the complex forming reagent say, 8-hydroxy quinoline and its various derivatives are shows number of thera-peutic efficacy as well as antifungal activity (3-5). Certain halogen derivatives of 8-hydroxyquinoline have a record of thera-peutic efficacy in the treatment of cutaneous fungus infections and also of amebic dysentery. (6,7) The important biological activity of thiazole moiety containing drugs the present candidate interested to explore the field of extensive derivatives of thiazole moiety. The thiazole derivatives are reported as important various drugs including anticancer, antimicrobial, anesthetic, antiviral, anti T.B. etc (8-11). Hence, the present paper deals with syntheses, characterization, chelating and microbicidal properties of 5-(3-(4-chlorophenyl)imidazo[2,1-b]thiazol-6-yl)-8-hydroxyquinoline (ITHQ) (scheme-1).

Materials and Methods:

All other chemicals used were of laboratory grade. 5-chloroacetyl-8-hydroxy quinoline and 2-amine-4-(4-chlorophenyl)thiazole were prepared by reported method (12,13).

Synthesis of 5-(3-(4-chlorophenyl)imidazo[2,1-b]thiazol-6-yl)-8-hydroxyquinoline (ITHQ) :

A mixture of the 2-amine-4-(4-chlorophenyl)thiazole (0.002mol) and 5-chloroacetyl-8-hydroxy quinoline (0.002mol) in anhydrous ethanol (25 mL) was stirred at reflux for 14 h. The solution was cooled to room temperature, the solvent was removed in vacuo, and saturated aqueous Sodium bicarbonate solution was added to make the mixture basic (pH = 8-9). The mixture was extracted with CH_2Cl_2 (3 x 15 mL), the combined organic phases were washed with brine (10 mL) and dried with anhydrous Na_2SO_4. After removal of the solvent, the residue was stirred with ethyl ether (10 mL) and filtered to obtain novel heterocyclic ligand, 5-(3-(4-chlorophenyl) imidazo [2,1-b]thiazol-6-yl)-8-hydroxy quinoline (ITHQ). It was insoluble in common organic solvent but soluble only in formic acid and DMSO. It melts at 202°C. Elemental analysis for $C_{20}H_{12}N_3OSCl$ (377.5) Cal.(Found)C% 63.57(63.5),H% 3.20(3.1),N%11.12(11.1) and S% 8.49(8.4). IR Spectral Features(cm^{-1}):3400-3350 (-OH),2850,1630,1575,1470,755 (aromatic),1585 (C=N),632 (C-S-C) and 1090(C-Cl).NMR Signals : δ ppm 6.9-8.9 (m, 9H, Ar-H), 5.8 (s,1H,OH) ,8.3-8.7 (s,2H,CH).

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OPTIMUM EFFICIENCY OF DSS CELL FOR GENERATION OF ELECTRICAL ENERGY

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Abstract : The objective of this work is to the optimum efficiency of dye sensitized solar (DSS) cell for generation of electrical energy. DSS cell containing a combination redox couple (Azur B-EDTA-CTAB) for generation of electrical energy. The observed cell performance in terms of photoelectric parameters such as: maximum potential, maximum photocurrent, short-circuit current, power at power point, conversion efficiency and storage capacity are -1035.0 mV, 475.0 ěA, 395.0 ěA, 104.50 ěW, 1.004 % and 140.0 minutes respectively. The proposed mechanism for the generation of photocurrent in photogalvanic cell is reported here.

Keywords : Solar effect, Optimum efficiency, photoelectric parameters, redox couple.

1. Introduction :

Presently, world is facing energy crisis and it is a biggest challenge in front of all nations to meet the energy demand. The demand of energy, the consumption of fossil fuels and pollution level are increasing with an alarming rate worldwide. The solar energy is the most readily available non-conventional source of energy which is most abundantly and freely available renewable source of energy. The new approach for renewable energy sources has led to an increasing interest in dye sensitized solar (DSS) cells because of their reliable solar energy conversion and storage capacity. The DSS cells are those cells in which solar energy convert into electrical energy via formation of an energy rich species that exhibit the solar effect. DSS cell works on solar effect. The solar effect was first of all recognized by Rideal and Williams (1) and it was systematically studied by Rabinowitch (2-3), and then by other scientists (4-9). Some researchers (10-11) have studied on how to enhance the performance and conversion efficiency of solar cell. A detailed of literature survey reveals that solar cell consisting of various dyes with reductant, mixed dyes with reductant and dye with reductant and surfactant for solar energy conversion and storage reported time to time (12-26). Recently some solar cells are developed by Meena and his co-workers (27-30) for generation of electrical energy from various photosensitiser and reductant. Present work is to the ooptimum eefficiency of dye sensitized solar (DSS) cell for generation of electrical energy in the presence of suitable redox couple (Azur B-EDTA-CTAB).

2. Materials and Methods :

Azur B (MERCK), CTAB (MERCK), EDTA (MERCK) and NaOH (MERCK) are used in the present research work. All the solutions are prepared in doubly distilled water and the stock solutions of all chemicals are prepared by direct weighing and are kept in coloured container to protect them from the light. The entire cell is set systematically for the PG studies, which consists of thin foil of electrochemically treated platinum as electrode and saturated calomel electrodes as a reference electrode. The distance between the illuminated and dark electrode is 45.0 mm. An ordinary tungsten lamp of 200 W is used as light source. Water filter is used to cut-off IR radiations. The photopotetial is obtained as the difference between the initial potential of the cell in dark and the equilibrium potential attained by the cell under constant illumination. The potential is first measured in

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ULTRASONIC VELOCITY AND VISCOSITY STUDIES OF ANTIMONY CHLORIDE, CALCIUM IODIDE IN POLAR SOLVENT

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Abstract : The Viscosity (η) and density (ρ), ultrasonic velocity(U) of Metal Halides (Antimony chloride, calcium iodide)inacetone have been studies various acoustical parameters have obtained which include intermolecular free length (L_f), molar sound velocity (R), solvation number (S_n) and relative association (R_a) Specific acoustic impedance (Z) apparent molal compressibiliy (ϕ_k), and different molar volume ϕ_vThe dependent of there properties on Significant Interaction between solute and solvent molecules.

Keywords : Ultrasonic velocity, Acetone, Metal halides,Adiabatic compressibility, specific acoustic impedance, Intermolecular free length.

Introduction :

Ultrasonic velocity determination have been carried out in a number of organic liquid, inorganic compounds dilute solution and high polymers by several worker's (1-10), with Development diffraction, Interferometric and pulse techniques. on the basis of the Theory of Intermolecular attraction force explained by Ram Prasad (11), Parthasastry's (12), has shown that lengthing of the molecular chain increase the sound velocity Ramchandran Rao and Nambinarayan (13), studies Ultrasound velocity, viscosity and density of oxalic Acid dehydrated In tetrahydro Furon (T.H.F) and calculated adiabatic compressibility, Internal pressure & Intermolecular free length. The Ultrasound velocity increases non linearly with increasing concentration of oxalic acid dehydrated Indicates association through hydrogen bonding. Monwotkar & Dhonge (14) studied viscosity, density and apparent molal volume in aqueous salt solution at 25C chimitlorzhiev (15) studied the Iodide of sodium, cadmium and zinc in methanol, ethanol, n-propanol& iso-butanol showed that the ultrasound velocity were linear Function of square root of concentration.

Materials and Method :

All chemicals were used of analytical reagent (AR) grade. The purity of the used chemicals was checked by density determination at 35^{0}C, the values of density obtained tally with the literature values, Binary liquids mixtures of different known compositions were prepared in airtight-stoppered measuring flask to minimize the leakage of volatile liquids. The weighing was done using electronic balance with precision ± 0.01mg. The double walled bicapillary Pyknometer was used for the measurement of densities of solvents andsolutions (16-17) with an accuracy of ± 0.0005gm/cm^3. An ubbelohde viscometer, having frequency of 2 MHz (Mittal Enterprises, New Delhi, Model: F-81) with an accuracy of ± 0.05% (18-19), Detailed of Experimental techniques are given elswhere (20-22).

Theory and calculation :

Different thermodynamic parameters such as adiabatic compressibility (β), intermolecular free length (L_f), Specific acoustic impedance (Z), apparent molal compressibility (ϕ_k), solvation number (S_n) and relative association (R_a), have been calculated at 35^{o}C, using ultrasonic velocity (U), density (ρ) and viscosity (η) of these solutions with the help of following equations.

1. $\beta = U^2 \times \rho^{-1}$
2. $L_f = K \times \beta^{-1/2}$
3. $Z = U \times \rho$
4. $\phi_k = 1000 (\rho^0\beta - \beta^0\rho) / C\rho^0 + (\beta^0 \times M) / \rho^0$

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PREPARATION, CHARACTERIZATION AND BIOLOGICAL SCREENING OF NOVEL METAL COMPLEXES

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Abstract : The reaction between 2-(4-chlorophenoxy)acetohydrazide with ethylacetoacetate yielded the ligand, ethyl 3-(2-(2-(4-chlorophenoxy)acetyl)hydrazono)butanoate (CPAHEAA). The ligand and it's metal complexes of Cu(II), Co(II), Ni(II), Mn(II) and Zn(II) complexes have been synthesized and characterized by elemental analysis, Spectral studies and magnetic moments. All the samples were monitored against common fungi for their antifungal activity.

Keywords : Hydrazide, Metal Complexes, Spectral Studies and antifungal activity

Introduction :

Metal complexes of hydrazones represent an important class of co-ordination compounds. Hydrazones containing hetero donor atoms continue to provide the interesting facts in the fields of co-ordination chemistry. The hydrazones and their metal complexes have a variety of application in industry, agriculture and medicine (1-3). Many of hydrazone compounds which are reported to be physiologically active find application in the treatment of several diseases such as tuberculosis, leprosy and mental disorders, tuberculostatic activity (4-7). The β-ketones are well known examples (8-10) and they show antineoplastic activity (11,12). Such hydrazones are also used for colorimetric determination of metal ions (13). Many examples are reported as potential characteristics (14). Looking to such work, it was found that certain hydrazones of ethyl aceto acetate are not studied. The present work in light of complexation of ethyl 3-(2-(2-(4-chlorophenoxy)acetyl)hydrazono)butanoate (CPAHEAA). Thus the present communication comprises the synthesis, characterization and microbiacidal study of CPAHEAA and it metal complexes. The research work is shown in scheme-1.

Materials and Methods :

All the chemical used were of LR grade.

Synthesis of ligand ethyl 3-(2-(2-(4-chlorophenoxy) acetyl)hydrazono)butanoate (CPAHEAA) :

In EtOH mixed 2-(4-chlorophenoxy)acetohydrazide (0.01 mole) and ethylacetoacetate (0.012 mole) and it was refluxed on sandbath for 4 hrs, then they pour into hydrochloric acid containing ice cold water, the solid product separate out namely, ethyl 3-(2-(2-(4-chlorophenoxy) acetyl) hydrazono) butanoate (CPAHEAA).The solid product was filtered, washed with petroleum ether, dried and recrystallised from ethanol. Yield was 83%, m.p. 146-147^{0}C Uncorrected (Capillary method).elemental analysis for $C_{14}H_{17}N_2O_4Cl$ (312.5) : Cald : % C-53.77, %H-5.48, % N-8.96 ; Found : % C-53.7, % H-5.4 and %N-8.9 IR spectra for CPAHEAA shows bands at 3030 cm^{-1} (Aromatic C-H), 28500, 2920, 1430cm^{-1} (-CH_2), 1690 cm^{-1} (-COO), 1680, 1580, 1610 cm^{-1} (-CONH),1630-1685 cm^{-1}(-C=C), 1620-1640 cm^{-1} (C=N), 1310-1250 cm^{-1} (C-O) and 1090 cm^{-1} (C-Cl). 1H NMR peak at 6.9 - 7.4 ppm (4H,m, aromatic-H), 2.1 (3H, s, CH_3), 4.6, 2.7 (4H, s, CH_2), 4.2 (2H, q, -CH_2), 1.3 (3H, t, -CH_3) and NH of CONH (not shown discernibly).

Synthesis of Metal Complexes :

The metal chelates of CPAHEAA (i.e. of Cu(II), Mn(II), Zn(II), Co(II), Ni(II) ions) were prepared as follow:

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EFFECT OF SODIUM ARSENITE ON LIPID LEVEL OF DIFFERENCE TISSUES OF FRESH WATER PROSOBRANCH SNAIL TEREBIA LINEATA (GRAY)

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Abstract : Effect of sodium arsenite on lipid level in mantle, foot, hepatopancrease and whole body of fresh water, snail Terebia lineata has been studied. After acute and chronic exposure to sodium arsenite lipid content was increased in all the tissues at all the exposure periods.
In the present study the impact of sodium arsenit on lipid level on foot, mantle, hepatopancrease and whole body tissues of fresh Water Terebia lineata. The snail exposed to 0.325 ppm sodium arsenite as acute treatment and 0.030 ppm as chronic treatment. There were significant increase in overall lipid content of foot, mantle, hepatopancreae and whole body tissues of Terebia lineata. The hepatopancreae was found to be a very susceptible organ to sodium arsenite impact.

Key Word : Terebia lineata, Lipid Sodium Arsenite, Foot, Mentle, Hepatopancreases, Whole body.

Introduction :

The mode of toxicity and mechanism of uptake of arsenate by organisms differ considerably. Arsenic compound cause acute and chronic effects in individual, population and communities as concentration ranging from a few microgram to milligram per litre, depending on species, time of exposure and end points measured.

Flat reserve in animal act as a store of energy which contain a large number of fatty acids. It helps an animal to survive for several days without food and also supplies energy at the time of environmental stress. In general, lipid generates more heat and energy than Carbohydrates. This essential nutrient is drastically affected and altered by various environmental pollutants like pesticides. The chemical which are used for pest management cause deleterious effect on environmental as they effect the non target and useful organism Ultimately (11). One of the victims among non target organisms is Prosobranch Snail which are commercially important to man. Terrestrial gastropods from the most important threats of sustainable agriculture in many parts of the world (4). Moreover, they play an important role in transmitting and spreading diseases to cultivated plans (10). land Snails are considered one of an economic importance among pest attacks different types of plant (9). Hepatopancreae is among the organ, which are most frequently attacked by the trematode larvae. Because of that numerous publications have been dealing with the pathological changes in the gland caused by the parasite invasion (6).

The present studies aim to examine due to sodium arsenite toxicity showed overall increase in the lipid level in all soft tissues like foot, mantle, hepatopancrease and whole body of fresh water presobranch snail Terebia lineata. It has been also observed that increase in lipid level was more pronounced in sodium arsenite due to acute and chronic treatment 24 hrs to 96 hrs and 10 to 15 days.

Materials and methods :

Medium sized normal and active acclimatized snail selected for the experiment. The experiment conducted by using sodium arsenite for lipid content. The animal were divided in to two groups, one kept as control and second was experimental animals were exposed to 0.325 ppm up to 96 hrs. It the end of 24 hrs, 48 hrs, 72 hrs and 96 hrs control and treated snail were dissected and their foot,

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STUDIES OF NOVEL CO-ORDINATION COMPOUNDS OF 1,3,4-OXADIAZOLE-2-THIONE

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Abstract : The reaction of 5-(4-chlorophenyl)-1,3,4-oxadiazole-2-thione with 5-chloromethyl-8-Hydroxy quinoline synthesized novel ligand 5-((5-(4-chlorophenyl)-1,3,4-oxadiazol-2-ylthio)methyl)quinolin-8-ol (CTODCMQ). By using $Cu^{(II)}$, $Co^{(II)}$, $Ni^{(II)}$, $Mn^{(II)}$ and $Zn^{(II)}$ metal ions metal chelates of ligand (CTODCMQ) were prepared. The entire synthesised the ligand and its metal chelates were analysised by elemental content, IR spectroscopic, metal: ligand ratio and magnetic properties. Antifungal activities of all the samples were also monitored.

Keywords : oxadiazole, 8-hydroxyquinoline, Metal Chelates, Spectroscopies analysis, Magnetic moment and Antifungal properties.

Intoduction :

In recent years the large and growing number of available CFR it is important for the practicing analyst to have compilations of the most important reagents for specific applications. (1-3) 8-Hydroxyquinoline (8-quinolinol, oxine) might be thought to function as a phenol, but of the 7 isomeric hydroxyquinolines only oxine exhibits significant antimicrobial activity, and is the only one to have the capacity to chelate metals. (4-6) Certain halogen derivatives of 8-hydroxyquinoline have a record of thera-peutic efficacy in the treatment of cutaneous fungus infections and also of amebic dysentery. (7) 8-hydroxyquinoline is employed as an industrial preservative as well as antifungal activity (8,9). The compounds containing 1,3,4-oxadiazole ring have been known for various activity like, antibacterial activities, anticonvulsant activity ,anti-inflammatory activity and etc. (10-12) Here We presented synthesis, characterization, chelating and Antifungal properties of 5-((5-(4-chloro phenyl)-1,3,4-oxadiazol-2-ylthio)methyl)-8-hydroxy quinoline (CTODCMQ)(scheme : 1).

Materials and Methods :

All other chemicals used were of laboratory grade. 5 - Chloromethyl-8-hydroxy quinoline (CMQ) hydrochloride and 5-(4-chlorophenyl)-1,3,4-oxadiazole-2-thione were prepared by reported method (4,10).

Synthesis of 5-(((5-phenyl-1,3,4-oxadiazol-2-yl) thio) methyl)-8-hydroxy quinoline (CTODCMQ):

5-(4-chlorophenyl)-1,3,4-oxadiazole-2-thione (0.12mol) was added gradually to a suspension of 5-chloromethyl-8-hydroxy quinoline (CMQ) hydrochloride (0.1 mol) in THF (100ml) in rb flask at room temperature, then add $NaHCO_3$ (0.2 mole) was added in the mixture and the mixture was refluxed on water bath for 4 hrs. After completion of reaction the resulting solid mass was filtered off, washed with hot water and the air-dried. It was dark brown amorphous powder. It was insoluble in common organic solvent but soluble only in formic acid and DMSO. It did not melt up to 230°C. Elemental Analysis $C_{18}H_{12}N_3O_2SCl$ (369.5) : Cal. (Found) C% 58.46 (58.4), H% 3.27 (3.2), N% 11.36 (11.3) and S% 8.67(8.6). IR Spectral Features (cm^{-1}): 3350(OH), 2950 (CH_2), 1260, 1070(ether), 2850, 1630, 1575, 1470, 755 (aromatic), 1594, 1580(C=N), 632(C-S-C) and 1090 cm^{-1} (C-Cl). NMR Signals : δ ppm 7.1-8.9 (m, 9H Ar-H), 5.8(s,1H,OH) , 4.5 (s,2H,S-CH2)

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AN IMPACT ASSESSMENT OF WIND FARM - A CASE STUDY OF BRAHAMANVEL SITE IN DHULE DISTRICT (MAHARASHTRA)

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Abstract : India with over 1.27 billion populations is the seventh largest geography and today ranks fourth among high energy consuming countries in the world. Wind energy is a very importantcontributor in the global power sector today, contributingnearly 4% of overall electricity generation.This achievementis the result of exponential growth in wind power developmentacross the world, particularly in the last decade.The present paper attempts to look into the ideal condition for installation of wind turbines and its site in the Brhamanvel and its surrounding area Brhamanvel wind farm is the largest in the state of Maharashtra in terms of both wind power installed capacity and installation of wind turbines. It has 547.900 MW installed capacity. Which constitutes 53.00 per cent of state's total wind power installed capacity. More than 61.00 per cent wind turbines of the state are installed here. For the present study, intensive fieldwork was conducted for collecting the primary data and other information from the local people and employees of wind farm. Brhamanvel has an ideal geographical location for installation of wind turbines. As far as impact of wind farm is concerned, most of the impacts are positive. Due to the development of wind farm, the land value has increased. The most of the surrounding villages have been benefited by road, educational institutes and medical facilities provided by the wind farm authorities. It has accelerated the transportation and communication system in the area of study and leading towards social and economic development at a rapid rate.

Key Words : Wind Power, Wind Turbines, Installed Capacity, Wind Farm, Brhamanvel.

Introduction :

Sustainable development is closely associated with energyavailability. It requires a continuous and efficient energy supply. Therefore renewable energy sources such as wind energy are vital for the Indian economy not only from supply side considerations but also for their environmental and social benefits. In 2008, global energy consumption generated though fossil fuel accounted for nearly 81% of the total energy consumed (Swedish Energy Agency, 2010)With growing demand for energy, increased environmental pollution, and depleting energy sources, human society today faces multiple challenges of transition towards a sustainable development and the poverty eradication.The total energy consumption is exponentially increasingworldwide. The wind energy project is one of the mostpossible ways for sustainable energy development.

Wind energy is not only the power generation technology that can deliver the deep cuts in CO_2 emissions the world needs to combat the worst effects of climate change, it also provides numerous other environmental benefits. It has a positive effect on air pollution, which is choking cities around the world, by not emitting dangerous air pollutants as other generation technologies. Wind energy does not produce any toxic waste and in addition, wind energy uses virtually no water, which, in an increasingly water stressed world, is a major environmental consideration.

Brahmanwel wind projects have come up during 1999-2002. The Sahyadri mountain top region extending from

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THE STUDY OF ACOUSTIC BEHAVIOR OF METAL HALIDES WITH ORGANIC SOLVENT

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Abstract : Acoustic deals with the phenomenon of sound in liquids. it has been termed as science of description creation and comprehension of human experiences. The Ultrasonic and various behavior of some matter halides (Antimony chloride, Antimony Iodide) with organic compounds (n-butanol) have been studies by different parameters such as Viscosity (η) density (ρ), ultrasonic velocity (U) intermolecular free length (L_f), molar sound velocity (R), solvation number (S_n) and relative association (R_a) Specific acoustic impedance (Z) apparent molal compressibility (ϕ_k) and different molar volume ϕ_v he dependent of there properties on Significant Interaction between solute and solvent molecules.

Keywords : Ultrasonic velocity, metal halides, n-butanol, ultrasonic interferometer, viscometer, solvation number, relative association Adiabatic compressibility, specific acoustic impedance, Intermolecular free length.

Introduction :

Acoustic an important branch of science deals with the phenomena of second. It has been termed as science of description, creation and comprehension of human experience. Ultrasound is the branch of acoustic science which deals with phenomena of frequency above the upper audible limit approximately 20,000 cycle/second, ultrasound wave frequencies above these range cannot be perceived by the human ear. The human ear range can perceive a vibration with in a definite range, 16 up to 20,000 cycle/second. The ultra sounds Frequencies lie between 20 kilo cps to 500 kilo cycle/second are known as ultrasound waves sound waves with frequencies beyond 20,000 cycle/second are known as supersonic waves can travel through liquid & solids. Corlin (1960) (1). Clickstlin (1960) (2) and crow & Ford (1955) (3), have made studies in application of low energy ultrasonic waves, low energy vibrations are mainly used in destructive testing of materials and so many different fields like as location of defects in materials, measurement of mechanical stress, viscosity and pressure measurement in liquid, to investigate acoustic and thermodynamics properties in pure state and their mixtures etc.

Materials and Methods :

Present work has been done, **"ultrasonic Interferometer" model F-81. manufactured by M/s Mittal Enterprises New Delhi,** Quartz crystal have different frequency. It has the accuracy of about ± 0.05% (4-6) it consist of two parts i.e.

(1) Measuring cell, provided with the gold quartz crystal having frequency of 2 MHz.

(2) High Frequency Generator.

Ultrasound velocity determination have been carried out in a number of organic liquid in organic compounds, dilute solutions and high polymer by several workers (7-12) with development diffraction interferrometiric and pulse technique the measurement of velocity in a number of organic liquid were investigated by various work's (13-14)

The viscosities of the various concentration solutions of the metal halides with alkanols were calculated by using the formula $\frac{\eta_1}{\eta_2} = \frac{\rho_1 t_1}{\rho_2 t_2}$

where $\eta_1, \eta_2, \rho_1, \rho_2, t_1, t_2$ are the viscosity, density, time flow for known & unknown solution respectively

All chemical used were of A.R. grade good quality the

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BIOCHEMICAL AND STRUCTURAL STUDIES OF SOME NEW Eu(III) HYDRAZONE COMPLEXES.

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Abstract : Hydrazones have been known to exhibit biological and antimicrobial properties. These compounds when in complexation form also have shown some biological activities. This paper includes synthesis of some new Eu(III) hydrazone complexes and their studies for elucidating their structures and then screening these complexes for their biochemical studies. The results of elemental analysis and metal estimation and then IR spectra, UV-Visible spectra and NMR spectra revealed that these new complexes possess octahedral structures. Further, the complexes were studied for their biochemical activities against bacteria S. aureus and S. alternaria and fungi C. albicans and A. niger. The results of these biochemical studies showed that both the complexes are highly active against the bacterial strains and moderately active against the fungal strains. However the ligand was found to be less active against the bacteria and the fungi. This proved that the hydrazones when in complex form are much more biochemically strong as compared with the ligand.

Keywords : Biochemical, Structural, Eu(III), Hydrazone.

Introduction :

During the past few years hydrazones have been studied due to their vast biochemical applications viz. antimicrobial, anti-inflammatory, anti-platelet, anti-helmintic, anti-mycobacterial, anti-viral and anti-malarial activities (1-9). Hydrazones have also shown high complexing tendencies with heavy metals and also some lanthanide metals. Due to their strong biological activities the hydrazones when in complexation form with lanthanide elements exhibit much greater antimicrobial effect than when only in ligand form. Viewing their biological uses it has been considered to synthesize some new hydrazone complexes of Europium (III) by condensation with carbonyl compounds.

Materials and Methods :

1. Thiodipropionic acid
2. Thiodiacetic acid
3. Oxydiacetic acid
4. 2,6-diacetyl pyridine
5. 2,6-pyridine dicarbonyl dichloride
6. Europium(III) chloride.

Solvents used :

1. Ethyl alcohol
2. Propylene glycol.

All the chemicals used were of A.R. grade.

Synthesis of ligands :

(a) Thiodipropionic dihydrazide :

Firstly 0.01M of thiodipropionic acid was mixed with 0.02 M of hydrazine hydrate in ethanol in a R.B. flask and the mixture was refluxed for about four hours. Afterwards the heating was stopped and the mixture was cooled when slowly light yellow colored solid separated out from the mixture. The solid was filtered washed and dried over anhydrous CaCl2 in a desiccator. The dried solid was weighed to a constant weight.

Melting point : 135^{0}C.

Color : Light yellow.

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GEL GROWN OXALATE CRYSTALS: A REVIEW

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Abstract : In this review an attempt has been made to cover existing and recent information on the growth of oxalate crystal in gels. Crystal growth technology had developed along with development in the 20th century. Crystals are the pillars of modern technology. The good quality crystals play important role in advances in solid state technology. Researchers are using various gel techniques to grow crystals. All the methods have their own potential and limitations. Due to its simplicity, the crystal growth gel technique has become more popular and has been used by several investigators. Gel growth technique is well suited for the crystal growth of compounds, which are sparingly soluble in water and decompose before melting. By cautiously choosing the pH, specific gravity of gel, percentage of gel, and reactant concentration, good quality crystals can be grown at room temperature. Metal oxalate crystals are found to be very useful in diverse applications in electrical, optical devices, medical, acousto optical devices, synthesis of super-conducting compound, etc.

Key words : Gel, Silica Gel, Agar Gel, Crystal growth, Oxalate, Nucleation.

Introduction :

Crystal have been commended by man ever since because of its beauty. The crystal growth from aqueous, organic and salt solutions has been studied for a number of years. In the late 20th century, a systematic research work on crystal growth in gels has been undertaken. Now-a-days, hardly any solid-state investigation is made without an attempt of using well-developed crystals. There are still numerous puzzling problems where research would benefit by the availability of crystals which have either not so far been grown or at least have not been grown in the right form or with suitable size and proper purity. Crystals grown in gel medium has attracted the attention of many researchers (1-3).

Due to its simplicity, it can be successfully used at room temperature to suppress nucleation centres and is suitable for crystals having low solubility (4-7). The ferroelectric and ferroelastic properties of rare earth oxalates and molybdates have wide applications in electro and acousto optical devices (8-9). The grown crystals are analysed by morphological, thermal, optical, magnetic and dielectric studies (10-14).

Gels :

A highly viscous two-component system of a semi-solid nature, rich in liquid, and having fine pores in it may be referred to as 'gel'.

Gel can be classified in number of ways. Silica gel, usually prepared from sodium metasilicate solution (SMS), synonymically called silica hydrogel, waterglass, or silicate glass. The agar gel is a carbohydrate polymer derived from seaweeds. Gelatin gel resembles protein structure. The clay gel, soap fluid, polyacrylamide, dense solution of metal hydroxides, polyvinyl alcohol, oleates, stearates, aluminates, etc. are several substances to be categorised as gels (5, 15). The silica gel is the most favourite gel for the crystal growth experiments (15), however agar-agar gel is also used (10-12).

Silica Gel :

Sodium meta-silicate (Na_2SiO_3) has been always be the cheapest source of relatively pure silicic acid from which silica gel can be made. Sodium meta-silicate reacts with water to give mono-silicic acid and liberates NaOH in accordance with the reaction $Na_2SiO_3 + 3H_2O \rightarrow H_4SiO_4$