ASSESSMENT OF GROUND WATER QUALITY OF DINDIGUL REGION IN TAMILNADU, INDIA

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Abstract

Water is an essential natural resource for sustaining life and environment that we have always thought to be available in abundance and free gift of nature, however chemical composition of surface or subsurface water is one of the prime factors on which the suitability of water for domestic, industrial and agriculture purpose depends. About 80% of the earth surface is covered by water out of which only a small fraction is available for consumption. The rest is locked up in oceans as salt water, polar ice caps, glaciers and underground. Groundwater is a reliable source of water supply, because it is often unpolluted due to restricted movement of pollutants in the soil profile. The present investigations were carried to analyze and find out the quality of groundwater samples in Dindigul region. The physico-chemical parameters of water samples such as temperature (T), pH, Specific conductance, Total alkalinity (TA), Total dissolved solids (TDS), Total hardness (TH), Dissolved phosphates, Dissolved oxygen (DO), Chloride (Cl-), Fluoride (F-), Iron (Fe), Calcium (Ca), BOD and COD have been carried out in Dindigul district. The results were compared with the standard values of WHO and BIS. Thus it concluded that:

• Rain water harvesting is one of the solutions to minimize the inorganic chemical concentration in ground water.

Keywords: Groundwater, Physico-chemical parameters, WHO and BIS
SYNTHESIS AND CHARACTERIZATION OF TITANIUM DIOXIDE NANOPARTICLES

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Abstract

Titanium dioxide nanoparticles were successfully synthesized. The as-synthesized TiO₂ nanoparticles were subjected to X-ray diffraction (XRD), Fourier Transform Infrared Spectroscopy (FTIR), UV-Vis spectroscopy and Scanning Electron Microscopy (SEM) studies. XRD confirms the formation of anatase phase. The crystallite size of TiO₂ nanoparticles calculated from the broadening of diffraction peaks using Scherer formula was approximately 19.72 nm. From the FTIR spectrum it was observed that the strong band in the range of 900 and 500 cm⁻¹ was associated with the characteristic vibrational modes of Ti-O bond and O-Ti-O bridge. This confirms that TiO₂ phase was formed. The optical properties of the synthesized nanoparticles indicate the quantum confinement effect. The absence of any absorption peak in the spectra of as-synthesized TiO₂ nanoparticles were in good agreement with the wide bandgap nature of samples and inability to absorb in the visible range.

Keywords: TiO₂; Nanoparticles; Optical properties; bandgap; Scanning Electron Microscopy; X-ray diffraction.
SYNTHESIS OF SILVER NANOPARTICLES USING *MORINGA OLEIFERA* FLOWER EXTRACT AND ITS ANTIBACTERIAL ACTIVITY

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Abstract

An ecofriendly method of obtaining spherical silver nanoparticles (AgNPs) has been synthesized, using *Moringa oleifera* flower extract as reducing agent. The biomolecules present in the extract was responsible for reduction of Ag+ ions from AgNO3. The prepared nanoparticles were characterized by UV–visible spectroscopy (UV–vis), X-Ray Diffraction pattern (XRD), Transmission electron microscopy (TEM) and Energy dispersive spectroscopy (EDS) technique to identify the size and shape of nanoparticles. The prepared AgNPs were monodispersed, spherical in shape with the average particle size of 8nm and shows surface plasmon resonance (SPR) peak around 429nm. The obtained nanoparticles exhibit good antibacterial activity against Gram negative pathogen *Pseudomonas aeruginosa* and Gram positive pathogen *Staphylococcus aureus*. So the prepared nanoparticles have found applications in biomedical field for inhibiting the growth of bacteria.

**Keywords**: Moringa oleifera; Optical properties; Surface Plasmon Resonance; antibacterial activity.
ANALYSIS OF GROUND WATER QUALITY FOR DRINKING PURPOSES IN VARAHANATHI RIVER, PERIYAKULAM, THENI DISTRICT

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Abstract

Ground water samples collected from different locations in and around Varahanathi River in Periyakulam district were analyzed for physico-chemical parameters such as temperature, pH, TDS (total dissolved solids), Electrical conductivity, Total hardness, Calcium (Ca), Magnesium (Mg), Sodium (Na), Potassium (K) and Chloride (Cl). Based on the various experimental results, it is arrived at the conclusion that the adjoining ground water sources are mostly affected and the water becomes very salty with very high TDS and it is unfit for drinking purpose and some suitable treatments are necessary so as to keep the values of some parameters among fascinating limits of BIS standards for drinking water. Hence the polluted water is suggested to treatment process. the water treatment may carried initially by using RO system and later it will be treated by suitable modern methods like solar treatment, electro dialysis process, etc.,

Keywords: Ground Water, Polluted water, Effluents, BIS, RO
STUDIES ON THE IMPACT OF ADDITION OF COMMERCIAL ENZYMES ON BLACK TEA AND ITS QUALITY PARAMETERS

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Abstract

Tea is one of the most important consumable product in the world, because it is a non alcoholic beverage. Most of the people in the world to consume tea for their refreshment. India is one of the largest consumer and producer of tea in the world next to China. Tea which may contain some important enzymes to eliminate the tiredness of working people in the earth and it is a very cheapest drinking beverage. The significance enzymes such as Polyphenols, Phenyl Ammonia Lyase, Pectinase etc. present in the green leaves and shoots, during the fermentation process polyphenols undergo oxidation and it is converted into Theaflavin, Thearubigin and Caffeine. All these parameters are very important for the quality of CTC black tea. The purpose of the present study is to improve the cuppage, liquor characteristics, price comprehension and manifestation of money-making black tea thereby providing consumer pleasure at home and out of the country. In this study the commercial available enzyme such as Neo- PPO and Extractase were added during the fermentation process. The results showed that the quality parameters of enzyme added black tea samples such as TF, TR, HPS, TLC, Caffeine were greater than that of normal black tea sample and its value is also applicable to within the limit of FSSAI act.

Keywords: Fermentation, Theaflavin, Thearubigin, Polyphenols and Enzyme
TREATMENT OF SEWAGE AND INDUSTRIAL POLLUTION USING SOLAR ENERGY

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Abstract

Sewage may be a major carrier of disease (from human wastes) and toxins (from industrial wastes). The safe treatment of sewage is thus crucial to the health of any community. This article focuses on the advanced physical and biological treatments are render sewage both biologically and chemically dangerous. Ground water samples collected from different locations in and around Mariyanathapuram (Dindigul Industrial estate) at Dindigul were analyzed for physico-chemical parameters such as Temperature, pH, TDS (Total Dissolved Solids), Electrical conductivity, Total hardness, Calcium (Ca), Magnesium (Mg), Sodium (Na), Potassium (K) and Chloride (Cl). Based on the various experimental results, it is arrived at the conclusion that the adjoining ground water sources are mostly affected and the water becomes very salty with very high TDS and that the ground waters are unfit for drinking purpose and some suitable treatments are necessary so as to keep the values of some parameters at the interval of desirable limits of BIS standards for drinking water. Hence the polluted water is suggested to water treatment using Solar evaporation System.

Keywords: Ground Water; Sewage; Industry effluent; BIS; Solar evaporation system
TRI SODIUM PHOSPHATE FOR INHIBITION OF MILD STEEL CORROSION IN SULPHURIC ACID SOLUTION

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Abstract

We are reporting TriSodium Phosphate as an inhibitor for mild steel corrosion in 0.5N sulphuric acid solutions. Inhibition potential of 250ppm of TriSodium Phosphate has been determined with the help of weight loss method and electrochemical techniques. Results obtained by various techniques are close to each other and maximum efficiency of 85% is acknowledged at the inhibitor concentration of 1000 mg l⁻¹.

Keywords: corrosion, inhibitor, Weight loss, metal surface.
SODIUM POTASSIUM TARTRATE AS AN EFFICIENT CORROSION INHIBITOR FOR MILD STEEL IN ACID MEDIUM

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ABSTRACT

To study the morphology and corrosion inhibition of Sodium Potassium Tartrate (SPT), corrosion studies on SPT were carried out by using electrochemical and spectrochemical studies as weight loss method, Polarization studies, UV–Vis, and FT-IR, SEM and AFM. Corrosion inhibition studies showed its inhibition efficiency. The present study shows Sodium Potassium Tartrate can be used as corrosion inhibitor and such rare morph variant should be conserved in nature.

Keywords: corrosion, inhibitor, Polarization, metal surface.
INHIBITION OF MILD STEEL CORROSION IN 0.5N H₂SO₄ BY
POTASSIUM DICHROMATE SOLUTION

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ABSTRACT

Corrosion inhibition of mild steel in 0.5 M H₂SO₄ was investigated in the absence and presence of different concentrations of Potassium Dichromate. Weight loss measurements and electrochemical studies were employed. The results obtained show that the inhibition was found to increase with increasing concentration of the PDC. The inhibitive actions of the PDC are discussed on the basis of adsorption of stable complex at the mild steel surface. Polarization curves revealed that the PDC inhibitor acts as mixed type inhibitor and the inhibition efficiency up to 99% was obtained.

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Keywords: Mild steel, Polarization, Weight loss, Acid corrosion.
CORROSION INHIBITION PERFORMANCE OF SODIUM MOLYBDATE IN 0.5N SULPHURIC ACID ON MILD STEEL

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ABSTRACT

The inhibitive effect of Sodium Molybdate (SM) on the corrosion of mild steel in 0.5 N H₂SO₄ solutions was investigated using potentiodynamic polarization and electrochemical impedance spectroscopy (EIS) techniques. The stability of the inhibition efficiency of SM was examined by weight-loss method. Potentiodynamic polarization curves indicated that the SM behaves as mixed type inhibitor. The corrosion rates of steel and the inhibition efficiencies of the extract obtained from impedance and polarization measurements were in good agreement. Inhibition was found to increase with an increasing concentration of the SM. The results obtained show that the SM could serve as an effective inhibitor for the corrosion of mild steel in 0.5 N H₂SO₄ solutions.

Keywords: Mild steel, Polarization, Weight loss, Acid corrosion.
SYNTHESIS OF A NOVEL HETEROCYCLIC HYBRID MOLECULE AS A CORROSION INHIBITOR FOR MILD STEEL IN SULPHURIC ACID MEDIUM

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ABSTRACT

The inhibition effect of 2-(4-hydroxyphenyl)-3-(1H-imidazol-5-yl) naphthalene-1,4-dione Quinone imidazoles hybrid molecule (QIH) on mild steel corrosion in 0.5 N H$_2$SO$_4$ solution was studied by using electrochemical techniques such as potentiodynamic polarization curves, weight loss method and electrochemical impedance spectroscopy. Generally organic compounds contain heterocyclic atoms such as nitrogen, sulphur, oxygen and multiple bonds in the molecules. Heterocyclic compounds have reimbursing attention a significant inquisitiveness for their highly electron-donating and strong coordination abilities, and still receive much consideration because of their applications. One of the essential applications of heterocyclic compounds is corrosion inhibition against metals. Due to the presence of delocalized $\pi$ electrons and heteroatoms QIH has significant inhibition efficiency on the corrosion of mild steel in 0.5 N H$_2$SO$_4$ solutions. The inhibition efficiency increases with increase in concentration of quinoneimidazoles hybrid molecule but decrease with rise in temperature. Polarization measurements signify that QIH acts as mixed type corrosion inhibitor. Scanning electron microscopy and atomic force microscopy were used to study morphology of the mild steel surface.

*Keywords: corrosion, inhibitor, heterocyclic compounds, metal surface.
Historical Raid ON “Midnight’s Children”

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ABSTRACT:

Literature speaks about humans experience with world, in this Indian Literature speaks about cultural difference, identity quest, historical background, unuttered emotion, subjugations in society. This paper focuses on historical ride in the novel Midnight’s Children written by Salman Rushdie, Which comes into categories of postcolonial, diasporic postmodernist novels. This work has enormous landscape, multiple religious, language, and massive populations, while it is funny, dark, ironic, allegorical and historical.

Keywords: Historical, Emotion, Allegorical.
DWELLING INTO CULTURAL DIFFUSIONS

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ABSTRACT:

Literature is a word that had reflects an interest in the world of reality as well as imagination. In that Indian literature is especially of those considered superior or lasting artistic merit. Culture, tradition, language are basic elements to construct own uniqueness in society. This paper is concerned on ‘dwelling into cultural diffusions’ in Rama Mehta’s inside the Haveli. This work appears as a seminal proof by portraying the lifestyle of womenfolk who were all led free inside a circle of love.

Keywords: Culture, Tradition, Language, Reality, Lifestyle
NATURAL REVOLUTION IN ANIMAL FARM

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ABSTRACT:

This paper aims at the Natural Revolution of the fiction ‘Animal Farm’ with the political perspective. It is a satirical work of George Orwell. This story shows the political clashes held in 20th century. It mainly aims at Marxism, Communism and Socialism of the people of Russia. It focuses the revolution of Russian communists and also it has the connection between the current issues of society and politics. This work mainly exposes the witty and satirical content, because it wants to argue about the politician of the 20th century.

Keywords:

Revolution, Political, Marxism, Communism and Socialism.
SUPERNATURALISM IN “MIDNIGHT CHILDREN”

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ABSTRACT:

Literature is an artistic work which was also considered as grander of artistic qualities. It depicts intellectual value of life. This also dealt with external world i.e. natural and man’s relationship. It gives delight and fruit of knowledge. Post colonial literature is composed on impact of colonized people. This mainly deals in addressing the problem and significance of decolonization of a country particularly about political and cultural independence of formerly conquered people. This paper deals with Post colonial work “Midnight children” published on 1981 by Salman Rushdie who was British Indian novelist and essayist. Most of his work concerned with supernaturalism and historical fictional set in Indian subcontinent. It was reflected as post modern and magical realist literature. This work won booker prize and Jamestait black memorial prize in 1981.

Keywords: Magical realism, Partition, Telephatic power.
PORTRAYAL OF FINANCIAL SUFFERINGS BY RIOT IN FAMILY MATTERS.

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ABSTRACT

Literature is purely personal experience and dealing with the social world order and its activities. The concept is about the Postcolonial literature. It explains the issue of political and cultural independence of early people dominated to the colonial rule. The post-independence was faced with a numerous of crisis including social, political and economic. Post-colonial writer brings their originalities and realities through their work. This paper talks about Rohinton Mistry’s “Family Matter” which is greatly concerned with the pathos of communalism. One who explains the conflict and economical sufferings faced by a family because of social and political issue during December 6 1992 and it was published in 2002.

KEY WORDS:

Financial sufferings and Communalism.
HUMAN PSYCHOLOGY IN “SPARROWS”

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Abstract:

Literature is an art of written works, especially those considered of superior artistic merits. Indian literature mostly focuses on the concept moral values of human’s life. Kachuru describes Indian literature as “one of the voices in which India speaks, it is a new voice, no doubt, but much Indian as the others.” SriAurobindo, R.K.Narayan, Sarojininaidu, Vijay tendulkar, was all the famous writers in Indian English literature. This paper quest on K.A.Abbas’s famous short story sparrow states the theme of human psychology and other social controversories. Here the story examines the importance of displaying the feelings of love and care within human beings and our own family.

Keywords: ambitious, sense of prevailing, reserving mentality, realizing life and love
CULTURAL AND TRADITIONAL TRANSFORMATION IN “THE PATRIOT”

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ABSTRACT:

Literature is one of the visual arts like harmony than depiction. Literature is purely of personal experience. Literatures in the English that were produced in India are considered to be the Indian English literature. Some of the other Indian English writers like K.N.Daruwala, Tagore, AmitavGosh, etc.; have written so many works in their own way of writing. Nissim Ezekiel, the poet of ‘The Patriot’ have said about the cultural and traditional transformation occurred in the Indian society. NissimEzekiel wrote this poem in a satirical and mocking manner. His famous works are, “The discovery of India, Time to change, sixty poems, etc...”

Key words: non-violence, Indian in lassi, modernization, All men are brothers.
PSYCOANALYSIS - ON KILLING A TREE

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ABSTRACT:

Literature is fundamentally, an expression of life through the medium of language. Indian literature refers to the literature produced on the Indian subcontinent until 1947 and thereafter. Many Indian writers like Nissim Ezekiel, Nehru, Tagore, R.K.Narayan, Sarojini Naidu had produced so many works in English on their own style. Among them Gieve Patel one of the great poets, playwright and painter who had composed the poem ‘On Killing a Tree’ which mainly focuses on deforestation, dead, pain. In this poem, the poet tries to portray how a tree is to be injured to kill and thus showing us that although killing a human soul.

Keyword: cutting down trees, effect, strength, tree and human, environment.
Education 4.0: Bridging the Gap between the Fresher’s & Industrial Expectations

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ABSTRACT

Today, the world moves towards Digital era. Everything in every single field has started to move towards digitalization. In the field of Education, the impacts and changes, which are made by digitalization, are acknowledged by everybody. The dominant utilization of Technology in the field of training can change the nature of education. The present study endeavors to concentrate on the desires of the industries from the fresher’s and how far education 4.0 encourages the students to meet the desires of the Businesses and Industrial World. Education 4.0 clears another portal for the students to accomplish their objectives.

Keywords: Digital era, digitalization, technology, education 4.0
THE IMPORTANCE OF AUTONOMY IN ENHANCING COMMUNICATION SKILLS FOR THE LEARNERS

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ABSTRACT

Autonomy is a key factor in almost every field. Everyone desires to do their work with certain liberty and everyone has the right to make their choices in the process of completing their task. Autonomy has first appeared in the field of foreign language teaching and it has been utilized by the learners of foreign countries for decades. The notion of autonomy has become popular and it has become an inevitable feature in the field of education since it encourages the learners to motivate themselves in initiating and framing their goals. Autonomy intrinsically implies freedom of choice. But this freedom of choice is hampered in a teacher centered learning environment. The teacher centered learning is considered as an outmoded approach and the environment that nurtures such a kind of learning method is undoubtedly a hindrance in the acquisition of communication skills. This paper throws limelight on the importance of autonomy for teachers as well as learners, the difficulties in implementing this method, the practical benefits of practicing and nurturing autonomy and the methods of practicing autonomy to reach the desired goal.

Keywords: Autonomy, Communication Skills, Inevitable, Outmoded Approach, Hindrance, Nurture
Linking of curriculum of school and college: A study with reference to civil engineering course

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Abstract

Any course that is studied in college should have continuity of the academic structure experimented in schools. Only then, students would be able study better. However, schools of Tamilnadu, India, do not expose the possibilities of higher education. Different subjects are studied in schools and different branches are studied in colleges. It is obvious that there is a gap in the curriculum of schools and colleges. The major problem arises when a student who studies ordinary science syllabus and chooses civil engineering for higher education. None of the fundamentals of civil engineering is taught in school. It is strange to note that students with no ground knowledge of construction choose civil engineering. It is hypothesized that this discontinuity could be one of the reasons for the poor performance of the students. This research is done to find out the importance of bridging the curriculum of school and college studies with special reference to civil engineering courses.

Keywords: gap in curriculum, syllabus, fundamentals, civil engineering