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RESEARCH, INNOVATIONS AND EXTENSIONS

Chapter 7
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Human Cataract in Non-coastal Districts

Aleyamma Kuruvilla[1*]

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ABSTRACT

A six-year study was conducted to compare the prevalence of cataract in Kottayam and Pathanamthitta in Kerala state, India. From April 2005 to March 2011, a hospital-based study was performed to determine the prevalence of cataracts in the overall population, gender prevalence, and prevalence in different age groups. The information was gathered from the ophthalmology departments of district hospitals and two private hospitals in Pathanamthitta and Kottayam districts, as well as the Directorate of Health, Thiruvananthapuram. The burden of blind is more in remote rural community of developing countries. With three out of every four Indians residing in the rural areas, there is a concentration of blindness in agriculture dependent communities in India. Cataract prevalence among the total population in Kottayam district was significantly increased from 0.34% to 0.51% (p=0.000157), but in Pathanamthitta district prevalence significantly decreased from 0.40 % to 0.36% (p=0.0024). Gender prevalence is significantly higher in females in Kottayam (61.6%, 0.0000326) as well as in Pathanamthitta (59%, 0.00014) than in males, suggest that females have more cataract. A significantly highest prevalence recorded in the age group of 71-80 years in Kottayam (36.6%, 0.000072) and Pathanamthitta (33.6%, 0.000312) as compared with all other age groups. Prevalence of congenital cataract (0-15) is very less in Kottayam (1.2%) and Pathanamthitta(0.9%). The decrease in the prevalence rate in Pathanamthitta district is attributed to a decrease in the population.Only by developing effective strategies to low the incidence of blinding cataract can cataract blindness in Kerala be effectively managed. The current analysis of cataract prevalence in Kerala may shed light on the severity of cataract incidence in the state to some extent.

Keywords: Cataract; prevalence; districts.

1. INTRODUCTION

Cataract is a cloudiness or opacification of the transparent crystalline lens of the eye, which causes a gradual progressive decrease in visual acuity, eventually leading to blindness. According to the World Health Organization's global report from 2011, there are 285 million visually impaired people worldwide, with 246 million having poor vision, and the figure is steadily increasing due to population growth and ageing [1]. Cataract is the principal cause of blindness worldwide, leading to at least 53 million people blind up to now [1a].

Blind people are more common in developing countries' remote rural communities. Blindness is concentrated in agriculture-dependent communities in India, where three out of every four Indians live in rural areas. Sperduto reported that each of the 3 types of senile lens opacities was found more often in women than in men. Blindness is not only a medical and personal problem, it is also a socioeconomic issue for the individual and the community [2].

A national eye survey was conducted in 1996 among the Malaysian population of all ages, prevalence of bilateral blindness and low vision was 0.29% and 2.44% respectively. Females had a higher age adjusted prevalence of low vision compared to males [3]. The prevalence of visual impairment of children in China is 1.1 per 1000 and blindness and the prevalence is 0.33 per thousand and is close the level of developed country [4]. Blindness due to cataract in India is estimated to have a prevalence

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Chapter 3

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An Advanced Review on Pharmacology andPhytochemistry of Folklore Medicinal Plant *Hyptissuaveolens*(L.) Poit

M.Devi Priya[1*]

DOI:10.9734/bpi/cras/v12/10239D

ABSTRACT

The Lamiaceae family includes *Hyptis suaveolens (L.)* Poit. (Bush mint). It's an invasive weed withinsecticidal properties. It hastraditionally been usedto treatlung infections, uterineinfections, andskin problems. Phytochemicals isolated from the plant, including as steroids, alkaloids, phenolics,flavonoids, tannins, glycosides, and essential oil, have medical and pharmacological use . The currentreviewpaperfocusesonthe*H.suaveolens*pharmacological and otherrelevant elements.

Keywords:Hyptis;essentialoil;leaves;extractphytochemicals.

1. INTRODUCTION

Hyptis suaveolens (L.) Poit is a folkloric medicinal plant that is used to cure wounds, gastrointestinalissues, respiratory tract and uterine infections, and skin illnesses. It grows in thick clusters alongroadsides, in degraded moist and dry deciduous woodland, waste land, and overgrazed grassland, aswell as surrounding stockyards. It is a weedy foreign plant endemic to tropical America that hasbecome naturalised in the tropics, disrupting the recruitment pattern in the neighbouring populatedareas [1]. The plant is known as 'wilayati tulsi' because of its similarity to tulsi leaves, although it alsogoesbyothernamessuchasAmericanmint,bushmint,andthechanplant.

The plant is a sweet-scented woody herb with a tetragonal hispid stem, long petioled, pubescent,roughly elliptic-ovate reaching, base oblique, truncate or acute, margin coarsely serrulate, apex acute,chartaceous leaves, and a tetragonal hispid stem [2]. Flowers blue in short stalked axillary cymes,calyx ovoid, companulate and subequally 5 lobed, often accrescent. Corolla is bilabiate with lowerdeflexed and seccate lip and upper rounded. Stamens didynamous, diclinate, anther cells confluent,glandularovary 4partite,gynobasicstylewithashortly bifidstigma.Nutletsovoid,smoothorrugulose[3].

2. TRADITIONALUSE

Hyptis is used for ethnobotanical applications in rural communities in Africa[4]. Traditionally thedecoction of the roots is used as appetizer and the root is chewed with betel nuts as a stomachic; leafsap of *H. suaveolens* with lemon juice added is taken in Sierra leone for stomach ache and the leaf isapplied around the head for head ache or topically to maturate boils [5]. A leaf poultice is applied tocancersandtumoursintheAmericas[6].TheplantisusedbyvarioustribalcommunitiesofMaharashtra,Marathwadaregi ontocurevariousdiseaseslike,parasiticalcutanous,diseases,infection of uterus, and as a sudorofic in catarrhal condition. The essential oils contained in the leaveshave potential antimicrobial and antifungal properties [7,8,9,10]. The plant is stimulant carminative,antispasmodic, antirheumatic and antisoporific baths. It is also used for headache, stomachache andsnufftostopbleedingofthenose[11].Itisamedicinalantidotetopoison[12].InGuineaBissau,

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COMPETINGINTERESTS

Authorhasdeclaredthatnocompetinginterestsexist.

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Localized Plasmon Polariton Assisted Pl

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Abstract

Green synthesis is one among the leading research area
effective and eco-friendly methods for the biosynthesis of nano p
silver nano particles from aqueous silver nitrate through a facile
eaf broth of *Ocimumtenuiflorum*. The photo-catalytic behavior
reatly boosted if it gets assisted by the enhanced near-field an
lasmon (LSP). To study this five different samples of Silver na
ixing leaf broth and silver nitrate solution in different ratios (lea
8 using 1mM silver nitrate and in the ratio 1:1 and 1:5 using
pectively. The bio-synthesized silver nano-particles were char
ectroscopy, ICP and TEM. The colourless suspension change

after 20 hours which was used to identify the bio-reduction of silver nitra absorption analysis confirmed the formation of silver. TEM analysis re size is in nano scale. Among the five samples three samples (1mM, 1 were tested for their photocatalytic activity in order to study the effe photocatalytic activity. The rate constants for the three different sam 0.00103, 0.00395and 0.00292 per minute respectively. We observed th from 1Mm $AgNO_3$ in the ratio 1:5 (leaf extract: $AgNO_3$) exhibited the performance, which may be ascribed to the smaller size of the nano-part

KEYWORDS: A. *Ocimumtenuiflorum*, B. Photocatalysis, C. Plasmon nanoparticles

POLYMER NANOCOMPO
MEMBRANES FOR PERVAPORATION

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POLYMER NANOCOMPOSITE MEMBRANES FOR PERVAPORATION

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6

Graphene-based polymer nanocomposite membranes for pervaporation

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6.1 Introduction

In recent years, membrane separation technologies underwent rapid development due to its applications in various fields. The membrane provides a vital role in controlling the mass transfer through its selectivity. It increases the concentration of one of the components on the other side of the membrane and causes the separation or removal of the desired component. The wide range of applications involves analytical sample preparations of volatile/semivolatile organics, inorganics, and metals, large-scale applications such as desalination, ultrafiltration, gas separations, and pervaporation [1]. In this chapter, pervaporation separation using graphene-based composite membranes is highlighted.

Pervaporation is a modern and potential separation technique which has a high efficiency in azeotrope mixture separations. As the name implies, the pervaporation process includes permeation and evaporation of one of the components in a mixture at a faster rate through the membrane than the other. The liquid stream mixture is placed in contact with one side of the polymeric dense (nonporous) membrane and vacuum is applied on the other side. Sorption of the particles on the surface takes place first followed by the permeation of the highest permeable ones through the membrane to evaporate to the other side of the membrane which depends on the selectivity of the polymer. The vapors collected (permeate) are condensed and the process is repeated to get pure sample from the mix-

MOP-6

A Review on Tribology of Epoxy-MMTnanocomposites

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Polymers are used worldwide for a long time now. Polymer are used in different forms such asblends, film, compositesetc. The applicationsof these polymers are based on theirTribologicalbehaviours.Epoxybasedpolymersareusedinvariousindustrieslikeaerospace,paint,adhesivesandin electric cars where energy consumption isminimum. Montmorillonite nano clay is an excellentfiller for epoxy. Also it is eco-friendly .MMT filled epoxy resin show excellent thermal, mechanicaland anticorrosive properties. MMT nanoparticles increases energy for crack propagation and retard itsgrowth.ThepresentreviewisconnectedwithTribologicalbehaviourofepoxyMMTnanocomposites.

Keywords:-Tribology,MMT,Epoxy,nanocomposites

Introduction

Polymershavebeenwidelyusedinindustrieslikeaeronauticsandbiomedicals.Theirproperties are different in different field. Polymers are used in different fields as blends, composites,films and so on. All these forms depends upon tribological behaviours of polymers [1]. Wear meansscratching of polymer. To prevent scratching in metals, lubricants can be used. Since polymers are ofhigh molecular weight, lubricants cause swelling. CNTs, graphene and polyaramide fibers has beenusedtoimprovethetribologicalpropertiesofpolymers.Buttheyareexpensive.Inpolymercompositeswearmaybeduetofiberbreakage,fiberisdebondedfromthematrix.Also twofactor

strength and impact strength are improved to 41% and 95% respectively. 3 wt. % clay act as atougheningagentforepoxy.Specificabrasionvaluealsoget reducedat this optimumconcentration.

Hardness is a measure of wear properties. MMT filled epoxy shows better hardness than epoxy-TiO_2composite.Tensilestrengthofepoxy-MMT<TiO_2<Neatepoxy[11]. KevlarorCarbonfibersarethecommonreinforcementsforepoxy.Additionofnanoparticlesimproves wear resistant. It works like matrix shear yielding, binding on cracks and so on. They notonly bear load but also hinder crack propagation. Energy expenditure for crack propagation increasesas the number of nano particles increases which leads to high impact and wear resistance. Effect ofparticle size on tribological properties are not clear. Incorporation of both large and small sizedparticles together in a matrix gives better wear resistance. T. Ram Prabhu et al. [12] studied thetribological properties of E glass-epoxy nano composites filled with MMT and $CaSiO_3$. The statisticalanalysis shows that both the load and nano clay contents determineswearloss otherthan slidingspeed. Optimum concentration of nano clay for wear resistance is 2 wt. %. Above this concentrationthe particles are agglomerated. Agglomerated particles cannot withstand at shear forces. They arebroken. Turning over of nano particles in the course of sliding process reduces co-efficient of frictionand wear loss is less. While the large agglomerated hard particles are unable to roll. > 2 wt. % nanoclay content shows high percentage of fiber thinning and matrix wear.The wear debris increases wearloss by 3rd body wear mechanism. Tensile strength and flexural strength reaches maximum at 2 wt. %nano clay. Both the exfoliated structure and load transfer ability of $CaSiO_3$ are responsible for this.Homogenously dispersed particles pinn the cracks when ones propagated and prevents its growth.Cracks need more energy to cross over the twists and turns produced by nano particles and failurestrainincreases.

M. Esteves et al. [13] stated that 4 wt.% is the optical concentration of nano clay to getmaximum hardness. Hardness of fillers and their good dispersions are the two factors contribute tomaximum hardness of nano composites. Good dispersion of nano particles minimises the defects inmatrixwhich in turn increaseswear resistance. Degree of exfoliation determines the

produced in wet environment is less than that in dry environment. Wear volume against aluminium isless than steel for 0% to 1% nano particles. While it is comparable against both for 3wt % to 6wt%composites. A swelling can be seen in the matrix because of the hydrogen bonding of water moleculewithepoxyhydroxygroupthatinducesalargewearvolume.

Conclusion

MMT nanoclay is an adequate filler for epoxy matrix.An exfoliated clay particles are obtainedat1-4wt%offiller.Reductionincoefficientoffrictionandelevationofwearresistanceareobtainedatthisconcentration.Wearresistancecanbeboostedbytheincorporationofsmallparticles.Coefficientof frictioncurtailsinwetenvironment.

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സൈബർലോകവും സാമ്പത്തികചിന്തകളും

സജനി ജയപ്രസാദ്*

ആമുഖം

പുതിയനൂറ്റാണ്ടിന്റെ ചിന്തകളേയും വേഗത്തേയും സ്വാധീനിച്ച അതിർവരമ്പുകളില്ലാത്ത ലോക ശക്തിയാണ് അതിനൂതന സാങ്കേതിക വിദ്യകൾ. മനുഷ്യകുലത്തിന്റെ ഓരോ ചുവടിലും ശ്വാസത്തിലും ഇന്ന് ഈ ശക്തി ആഞ്ഞടിക്കുന്നു. ലോകത്തെ വിരൽത്തുമ്പിലേക്കെത്തിക്കാൻ സാങ്കേതികവിദ്യകൾക്കായി എന്നത് വിസ്മരിക്കാനാകാത്ത വസ്തുതയാണ്. ലോകം വിരലുകളിലെത്തുമ്പോൾ വിവരസാങ്കേതികവിദ്യ സാമൂഹിക, സാമ്പത്തിക, സാംസ്കാരിക, മാനസികതലങ്ങളിൽ വിവിധങ്ങളായ മുദ്രകൾ പതിപ്പിക്കുന്നുണ്ട്. ദിനംപ്രതി പുറത്തിറങ്ങിക്കൊണ്ടിരിക്കുന്ന നൂതന വാർത്താവിനിമയ സൗകര്യങ്ങൾ ദൈനംദിന ജീവിതത്തെ വളരെയധികം മെച്ചപ്പെടുത്തുകയും അതോടൊപ്പം ജീവിതത്തിന്റെ ഭോഗമായി അവ മാറ്റപ്പെടുകയും ചെയ്യുന്നു. ഇരുപത്തിയൊന്നാം നൂറ്റാണ്ടിലെ പ്രത്യേകതയായി എടുത്തുപറയേണ്ടത് മൂല്യത്തിന്റേയും സംസ്കാരത്തിന്റേയും നിശ്ചലാവസ്ഥയും നവമാധ്യമങ്ങളുടെ വർദ്ധിച്ചുവരുന്ന സ്വാധീനവുമാണ്. തലമുറ വ്യതിയാനങ്ങൾ, വ്യക്തി വ്യതിയാനങ്ങൾ, ലിംഗ വ്യതിയാനങ്ങൾ എന്നിവയ്ക്കനുസരിച്ച് ഇതിന്റെ പ്രഭാവം വ്യത്യാസപ്പെട്ടിരിക്കും. ഒരേസമയം രണ്ടു വ്യത്യസ്ത മുഖങ്ങളുള്ള ഇരുതല വാളാണ് നൂതന വിവരസാങ്കേതികവിദ്യ. ഇതിന് ആദ്യം ഇരകളാകുന്നത് പുതുതലമുറയായിരിക്കും എന്ന കാര്യത്തിൽ സംശയമില്ല.

തലമുറകളും സൈബർ ലോകവും

ദിനംപ്രതി നൂതന സാങ്കേതികവിദ്യയും വിവിധങ്ങളായ മാധ്യമങ്ങളും നമുക്കിടയിലേക്ക് കടന്നുവന്നുകൊണ്ടിരിക്കുന്നു. വിവിധങ്ങളായ

* യുവ എഴുത്തുകാരിയായ ലേഖിക റാന്നി സെന്റ് തോമസ് കോളേജിലെ സാമ്പത്തിക ശാസ്ത്ര വിഭാഗം അസിസ്റ്റന്റ് പ്രൊഫസറാണ്.

അറിവുകളുടെ കലവറതന്നെയാണ് നവസാങ്കേതിക വിദ്യകളടങ്ങിയ മാധ്യമങ്ങൾ. എന്നാൽ അവയുടെ ഉപയോഗരീതിയാണ് ശ്രദ്ധിക്കേണ്ടത്. മനുഷ്യൻ പല നൂറ്റാണ്ടുകളായി നേടിയ അറിവുകൾ, ജീവിതവേഗം എന്നിവ നിമിഷനേരത്തിനുള്ളിൽ നമ്മുടെ വിരൽത്തുമ്പിലേക്കെത്തുമ്പോൾ, ആ അറിവുകളുടെ ഉപയോഗം മാനവരാശി ശരിയായ രീതിയിലാണോ വിനിയോഗിക്കുന്നത്. എല്ലാ തലമുറയിൽപ്പെട്ട മനുഷ്യരും സൈബർ ലോകത്തിന്റെ ഉപഭോക്താക്കളോ ഗുണഭോക്താക്കളോ ആണ്. ഇതിന്റെ പ്രതിഫലനം ഓരോ പ്രായത്തിലും വ്യത്യാസപ്പെട്ടിരിക്കുമെന്നുമാത്രം. സൈബർ ലോകം എങ്ങനെ നമ്മുടെ ജീവിതത്തെ സ്വാധീനിക്കുന്നുവെന്നു വ്യക്തമാകണമെങ്കിൽ പ്രതിഫലനത്തെ വിവിധ കോണുകളിൽനിന്നും വീക്ഷിക്കേണ്ടതായുണ്ട്.

സാമൂഹിക പ്രതിഫലനങ്ങൾ

സമൂഹമെന്നത് വിവിധ തലമുറകളുടെയും വിവിധ പ്രായത്തിലുള്ളവരുടെയും കൂട്ടായ്മയാണല്ലോ. സമൂഹത്തിന്റെ നിലനിൽപ്പുതന്നെ പരസ്പരസഹകരണത്തിലും സഹവർത്തിത്വത്തിലുമാണ്. എല്ലാവരേയും ഉൾക്കൊള്ളാനുള്ള മനസ്സ് ഓരോ സാമൂഹിക ജീവിക്കുമുണ്ടാകുകയും വേണം. ഈ സഹകരണമനോഭാവത്തിനേലാണ് സൈബർ ലോകം ആദ്യമായി കടന്നുകയറിയത്. ടെലിവിഷൻ രൂപത്തിൽ എൺപതുകളിൽ ഓരോ കുടുംബത്തിന്റേയും സമയം നിർണ്ണയിക്കുവാനുള്ള കഴിവോടുകൂടി ഇവയെത്തി. ആദ്യകാലത്ത് എല്ലാവരും ഒരുമിച്ചിരുന്ന് ടെലിവിഷൻ കാണുക സാധാരണമായിരുന്നു. തൊണ്ണൂറുകളിൽ കുടുംബത്തിന്റെ സമയക്രമം നിർണ്ണയിക്കാനുള്ള ശക്തി ഇവയാർജ്ജിച്ചു. എപ്പോൾ ഭക്ഷണം കഴിക്കണം എപ്പോഴുറങ്ങണം എന്നു തുടങ്ങി നാം സ്വയം നിർണ്ണയിച്ചുകൊണ്ടിരുന്ന പല തീരുമാനങ്ങളും ടെലിവിഷൻ നിർണ്ണയിച്ചു. പിന്നിടുള്ള അവസ്ഥ പ്രായമായവരും കുട്ടികളും യുവത്വവും തമ്മിലുള്ള ടെലിവിഷൻ പോരാട്ടക്കഥയാണ്. ഓരോരുത്തർക്കും അവരവരിഷ്ടപ്പെട്ട പരിപാടികൾ കാണണം. ഇക്കാര്യത്തിൽ യാതൊരുവിധ വിട്ടുവീഴ്ചയ്ക്കും ഒരു തലമുറയും തയ്യാറായതുമില്ല. ഒരു വീട്ടിൽ ഒരു ടിവി എന്ന രീതിമാറി ഓരോ മുറിയിലും ഓരോ ടിവി എന്ന പുതിയ നയം നടപ്പാക്കുകയാണ് നാം ചെയ്തത്. സ്വകാര്യത എന്നത് ആവശ്യമുള്ളിടത്തും ഇല്ലാത്തിടത്തുമൊക്കെ ഉപയോഗിക്കുന്ന ഒന്നായി മാറി. ഒരു കുടുംബത്തിനുള്ളിൽത്തന്നെ പല സ്വകാര്യതകളായി. ഓരോ മുറിയിലും സ്വകാര്യത.

ഇത്രയും പഴയ കഥ. പുതിയ കഥയുടെ തുടക്കം വീഡിയോ ഗെയിമുകളുടേയും, മൊബൈൽ ഫോണിന്റേയും, ഇന്റർനെറ്റിന്റേയും, ഓർക്കുട്ടിന്റേയും, ഫേസ്ബുക്കിന്റേയും വ്യാപക ഉപയോഗം തുടങ്ങിയ

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CONTENTS

A STUDY ON THE IMPACT OF UNIVERSAL BASIC INCOME IN INDIAN ECONOMY

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ABSTRACT

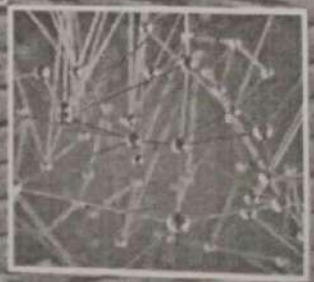
Universal Basic Income (UBI) is one of thepolicy option where there is amonthlyflowofcashpaymentfromthestatebudgettoeverycitizen.Thistransfer is for an entire lifetime and there are no prerequisites to be fulfilled bythebeneficiary.Hence,thisstudyaimstounderstandthefeasibilityoftheUniversal basic income foregrounding on the variables like fiscal cost, povertyrate.Apolicycheckisalsoundertakeninthispaperbycomparingtheefficiency of the established schemes (PMAY, SSA, MDM, PMGSY, MGNREGAand SBM) with the idea of universal basic income. Secondary data is used to dotheregressionanalysiswiththehelpofsourceslikeEconomicsurvey,reportsof OECD and NSSO with the time period taken from 2016-2017.The paperhighlights on the fact that ,UBI when compared to various schemes alleviatespovertyatahigherrateandalsoscalesdownthecomplexitiesforimprovingt hewelfare ofthe nation. Therefore,stating thatUBI is a better policy optionfortheIndian economy.

Keywords:*PMAY,SSA,MDM,PMGSY,MGNREGA,SBM,Universalbasicincome,Gini Coefficient,fiscal cost.*

1. INTRODUCTION

Universal Basic Income is premised on the idea that a just society needstoguaranteetoeachindividualaminimumincomewhichtheycancounton,andw hichprovidesthenecessarymaterialfoundationforalifewithaccessto

TRANSPORT PROPERTIES OF POLYMERIC MEMBRANES



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Transport Properties of Polymeric Membranes

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CHAPTER

Introduction to Gas Transport Through Polymer Membranes

17

Maruvathukavunkal Balakrishnan Sethu Lakshmi[1], Bincy Francis[2], Anil Kumar S.[1]

N. S. S. Hindu College, Changanacherry, India[1]; St. Thomas College, Pathanamthitta, India[2]

1. INTRODUCTION

In recent decades, mass gas transport owes greater industrial relevance especially in selective gas transport like syngas purification, inert gas generation, and natural gas processing [1]. Various technologies like thermal-driven cryogenic distillation, pressure swing separation, and chemical absorption are contributed in the field of gas separation [2]. From the last 20 years membrane technology is emerged as a competent alternative for the gas separation due to its inherent properties such as low energy, cost, low weight and space requirement, operational easiness, flexibility, and mechanical reliability. Moreover membrane gas separation does not require any phase change of the permeants. Energy efficiency and eco-friendly characteristics provide worldwide acceptance and demand to membrane technology in research and industrial field [3].

Membranes are thin films of less than 100 nm thickness through which gases can be separated from their mixture by the differential permeation of the components. At the earlier times, membranes are developed for reverse osmosis, ultrafiltration, and nanofiltration for the separation of species with large size difference. Membranes are successfully applied in the large-scale desalination of brine, waste water treatment, and oxygen enrichment of air [4]. Recently, membrane science step into the separation of various organic liquid mixtures. Membrane systems like cellulose derivatives, ethylene co vinyl acetate (EVA), etc., are useful for pervaporation studies. In the recent era, membranes are promoted for the separation of gaseous mixture with less pronounced size difference. Membrane gas separation carries engineering and economic advantages over the conventional technologies. Pressure swing adsorption method operates at two extreme pressures. Gas selectively adsorbed on the adsorbent at high pressure and desorption occurs at low pressure. Adsorbent with high mechanical stability is desirable for this. Chemical adsorption merits higher purity, recovery, and lowest economic barrier. But this method is not accepted for large-scale separation of gases due to its poor selectivity, higher energy consumption, and technical difficulties with adsorbent bed [2].

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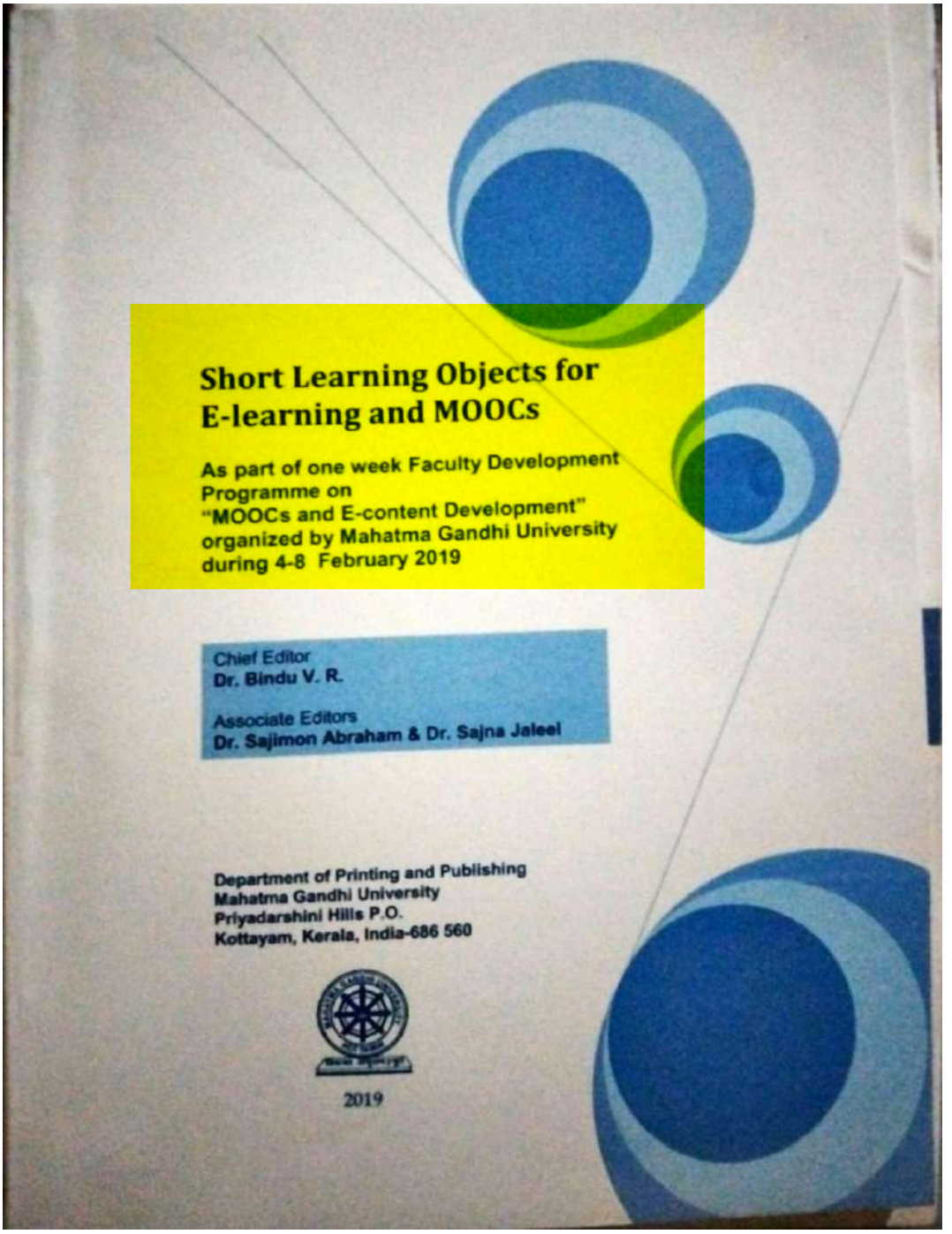

Short Learning Objects for E-learning and MOOCs

As part of one week Faculty Development Programme on "MOOCs and E-content Development" organized by Mahatma Gandhi University during 4-8 February 2019

Chief Editor
Dr. Bindu V. R.

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Department of Printing and Publishing
Mahatma Gandhi University
Priyadarshini Hills P.O.
Kottayam, Kerala, India-686 560

2019

Short Learning Objects for E-learning and MOOCs

As part of One Week Faculty Development Programme on "MOOCs and E-Content Development" organized by MOOC Programme Co-ordination Cell, Mahatma Gandhi University, in association with School of Computer Sciences, School of Pedagogical Sciences and University Centre for International Co-operation (UCIC) held during 04-08 February 2019.

Department of Printing and Publishing
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Foreword

The book titled **"Short Learning Objects for E-learning and MOOCs"** is the learning and research outcome of the One week Faculty Development Programme on "MOOCs and E-Content Development" organized by the University for faculty members during February 2019. The authors provide an overview of the significance of e-learning and the processes involved in the development of interactive content for e-learning. The e-learning phenomenon we experience today provides courseware designers with an opportunity to revisit all the fundamentals of instructional science comprising of learning theories and human performance.

The book covers the process behind the development of interdisciplinary e-learning contents by the participants which is already uploaded online. This is in tune with the continuing effort of Mahatma Gandhi University in the creation and use of e-content for teaching, learning and research. As we are moving towards on-line learning platforms in all kinds of educational transactions I am sure this book would be an extremely relevant source for future researchers in e-learning and also for the academicians who are intending to deliver courses through online platforms such as SWAYAM.

Mahatma Gandhi University is privileged to publish this book edited by Dr. Bindu V R jointly with Dr. Sajimon Abraham and Dr. Sajna Jaleel as a reference document for e-learning content makers to offer courses through online platforms. I congratulate the editorial team and the organizers of the FDP programme in bringing out such an academic document as the real outcome of the workshop.

Prof. (Dr.) Sabu Thomas
Vice Chancellor
Mahatma Gandhi University

17.05.2019

Contents

Calculating the Value of a Resistor Using Colour Code

Anju Joseph[29]

Abstract: - The E-content developed on the topic Colour code of resistors was mainly focussed on the students of physics and electronics. The 4 minutes content contains power point slides, small videos and some images in the form of JPEG and PNG format. The important instructional tools used were Microsoft power point, Adobe photoshop, Photofilter and E.M video converter. The content covers the method used for identifying carbon resistors using colour codes with suitable examples. The e content developed helps the students in identifying any resistor in electronics lab.

Keywords: - Carbon resistors, Colour code, Tolerance

Introduction

There are many different types of Resistor available which can be used in both electrical and electronic circuits to control the flow of current or to produce a voltage drop in many different ways. But in order to do this the actual resistor needs to have some form of "resistive" or "resistance" value. Resistors are available in a range of different resistance values from fractions of an Ohm (Ω) to millions of Ohms.

The resistance value, tolerance, and wattage rating are generally printed onto the body of the resistor as numbers or letters when the resistors body is big enough to read the print, such as large power resistors. But when the resistor is small such as a 1/4 watt carbon or film type, these specifications must be shown in some other manner as the print would be too small to read. So to overcome this, small resistors use coloured painted bands to indicate both their resistive value and their tolerance with the physical size of the resistor indicating its wattage rating. These coloured painted bands produce a system of identification generally known as a Resistors Colour Code. An international and universally

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PapersonCivilEngineering

PapersonChemistry

PhotoCatalyticBehaviorofGreenSynthesizedAgNano-Particle

R.Jayakrishnan[1*],Anju Dilu Abraham[1,2],VarunGNair[1]andRaniAbraham[3]

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Abstract:

Green synthesis of Silver Nano-particles has been demonstrated by this work. Silver Nano-particles with average size ~ 25-30 nmwere grown using the leaf extract of the plant Ocimum tenuiflorum. The photo catalytic behavior of the Ag Nano-particles wastested by using it to study the degradation of rhodamine B dye under direct sunlight. We observed that the dye was bleached after15hours ofexposuretodirect sunlight inthepresenceoftheSilverNano-particles.

1. Introduction

Traditionallythephotocatalyticdegradationofdyes was studied as a need to treat contaminated wastewaterreleasedbythetextile,leather,paper,hair-coloringandfoodindustry[1-2].Photo-induceddegradationofdyesinparticularrhodamineBandmethylenebluehavebecomeinrecentyearsthepreferredwaytoevaluatethevisiblelightphoto-activityofnovelmaterials[3].RhodamineB(*N,N,N′,N′*-tetraethylrodamine) belongs to the oxygen-containingheterocyclicxanthenedyesfamily.Rhodamine Bdoesnotdegradeinthedarkinthepresence of a photocatalyst nor under illumination inthe absence of a photocatalyst [4]. It has been reportedthatRhodamineBdegradesviaanefficientN-deethylationsensitizationmechanismunderintensevisible lightirradiation[5,6].Widelyusedphotocatalystsgenerallyincludemetaloxideorsulfidesemiconductors[7,8].There isademandforlowtemperature, low cost and green synthesis route. Recentdevelopments on size and shape controlled synthesishave yielded special properties to the synthesized nano-structures as compared to its normal counterpart [9].Thegrowthofdesirednano-particleswithdesiredmorphologies is still a great challenge and there is needto develop a facile strategy to meet this end along withdevelopment of optimal photo catalytic property to thegrownstructures.

Nano-particlescan besynthesizedusingvariousapproachesincludingchemical,physicalandbiological.Althoughchemicalmethodsofsynthesisrequiresshortperiodoftimeforsynthesisoflargequantityofnano-particles,thismethodrequirescappingagentsforsizestabilizationofthenano-particles.Chemicalsusedfornano-particlesynthesisandstabilizationaretoxicandleadtohazardous byproducts.Theneedforenvironmentalnon-toxicsynthetic protocols for Nano-particle synthesis leads tothe developing interest in biological approaches whichare free from the use of toxic chemical as by products.Plantsprovideabetterplatformfornano-particlesynthesis as they provide natural capping agents. Plantleafextractswerewidelyusedfornano-particlesynthesis in the last decade, which evolve as a cost-effective, environmentally viable technique, having thepotential to synthesize bioactive nano-particles withoutmuchinstrumentation. [10, 11]

InIndia,theHinducommunityhavelongcultivated Tulsi (Ocimum tenuiflorum L) as a religiousplant. It is said to aid meditation and is believed to beendowed with the spiritual power to transform souls. Itcan be found in homes and temples,whereits leavesare a common part of worship routines. Botanically, itbelongs to the mint family (*LAMIACEAE*). The leavesarealsoamajoringredientforlocalmedicinesthatbring relief to fever, sting from insects, itching of skin,headaches,coughs,diarrhea,constipation,worts,worms and kidney malfunctions.Thusit isrecognized as a natural source of bio - reductant andstabilizers. It has been reported to contain alkaloids,glycosides, tannis, saponins and aromatic compounds.Recent interest on *OCIMUM*has resultedfromitsinhibitory activityagainstHIV-1 reverse transcriptaseandplatelets aggregation. In this paper, we reportbiosynthesis forsilver nano-particles using *OCIMUMSANCTUM*leaf extract and test the efficacy of thephoto-catalytic activity the grown silver nano-particlesforthedegradationofRhodamine B dye.

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Dr. Seeman

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A STUDY ON EXPERIENCES AND INSIGHTS FROM FARM TOURISM PROJECT IN IDUKKI

Binimol Mathew,
Asst. Prof. Dept. of Commerce St. Thomas College Ranni.

The Project "Experience and insights Farm Tourism in Idukki' tries to prepare for study about Farm Tourism in Kerala with special reference to Idukki. The project offers comprehensive information on Farm Tourism. Key element of project include: nature of farm tourism in Kerala, activities of working farm, tourism opportunities for farm etc... The project should also be of value to students and teachers in tourism and commerce industry for understand more about farm tourism

INTRODUCTION

Tourism will be one of the world's highest growth sectors in the new century. World Tourism Organization statistics indicate that the tourism industry will continue to grow from strength to strength. It is further estimated by WTO that International tourism arrivals world wide would reach 1.5 billion by the year 2018. Tourism is a highly complex phenomenon and an important human activity of great significance. It encompasses economic, social, cultural, environmental, educational and political significance. In order to explain the complex tourism phenomenon in its various manifestations, it is necessary to have a systematic framework to explain it. The complex nature of the tourism phenomenon also implies that various academic disciplines are involved in its study.

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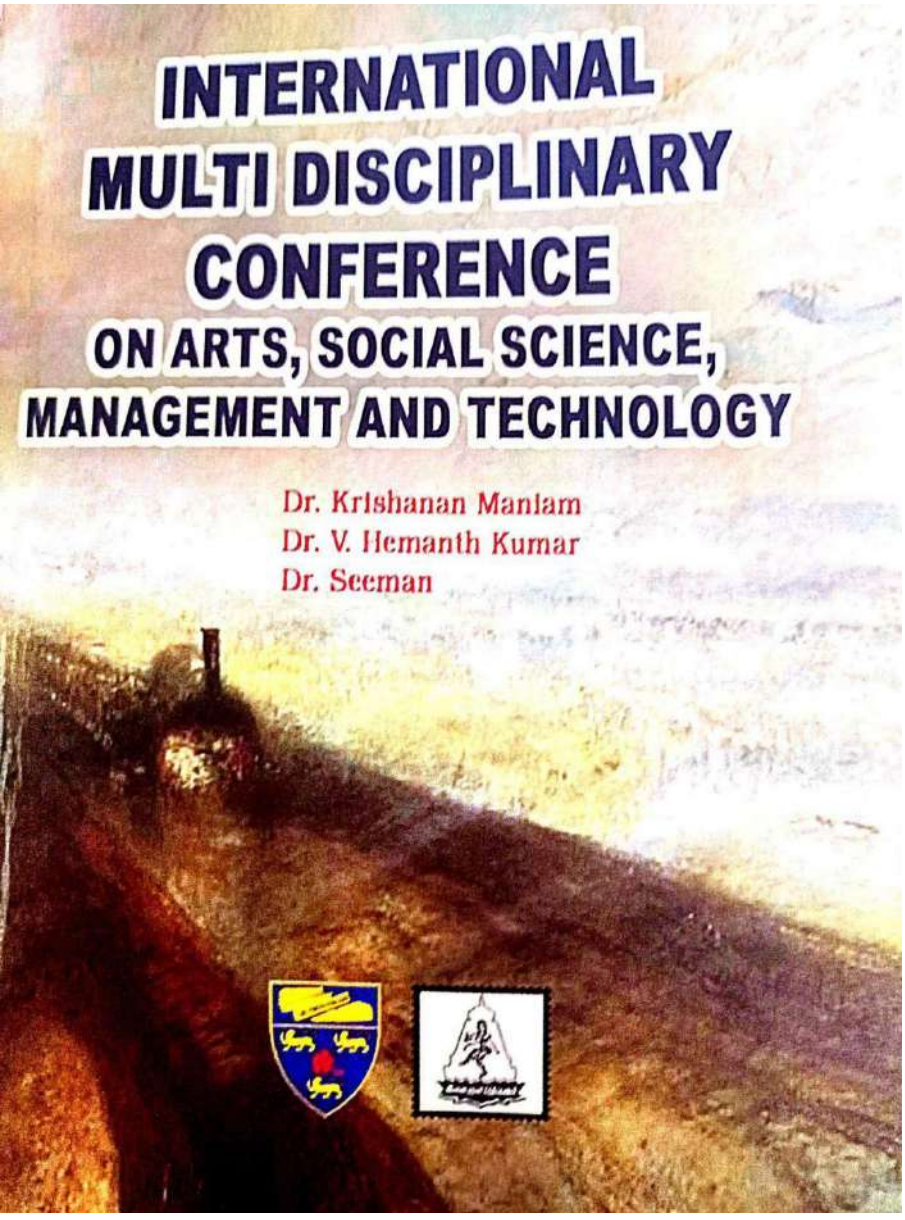

SERVICE QUALITY AND CUSTOMER SATISFACTION IN BANKING SECTOR CONCEPTUAL FRAMEWORK

Anu.T.Philip
Assistant Professor, Dept. of Commerce, St.Thomas College, Ranni,Pathanamthitta,Kerala

Abstract

The products and services offered by the banks are similar. The difference arises only in the level of service quality. Measurement of service quality is usually done with the help of service quality models. Customer satisfaction is affected by the quality of service provided. This study was designed to examine the service quality and customer satisfaction in banking industry.

Key words: Service quality, Customer satisfaction, banking sector

INTRODUCTION

Service sector become the main engine of economic growth. Service sector includes the services of banking, insurance, health services etc. This sector must learn how to evaluate the perceived quality of output. Due to increased competition, service quality has become a popular area of academic investigation. Service quality is recognized as a key factor in keeping competitive advantage and maintaining relation with customers. The performance of banks is positively linked with service quality.

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Invited Lectures

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GREEN SYNTHESIS OF SILVER NANOPARTICLES AND ITS CHARACTERIZATION

Anju Joseph

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anjudiluabraham@gmail.com

The field of green nano technology is one of the major research interests towards cost effective and eco-friendly method for the biosynthesis of nano particles. In this present study silver nano particles were synthesized from aqueous silver nitrate through a simple and eco-friendly route using leaf broth of Ocimum sanctum as reductant and stabilizer. Five different samples of silver nanoparticles were prepared from leaf broth and silver nitrate solution in different ratios of 1:1,1:5,1:8 using 1mM and 1:1 and 1:5 using 3mM silver nitrate solution. The biosynthesized silver nanoparticles were characterized using UV – Visible Spectroscopy and TEM. The bioreduction of silver nanoparticles was completed in around 20 hours. TEM analysis reveals that the particle size in nanorange. We observed that the sample prepared from 1Mm $AgNO_f$ in the ratio 1:5 (leaf extract: $AgNO_f$) had the largest stability.

A STUDY ON THE BIO-DIVERSITY OF EZHANTHALA, THEKKETHODE, KONNI RESERVE FOREST BY SIMPSON'S INDEX

Arathy S. and R. Aruna Devy

Department of Zoology, St.Thomas College, Ranni – 689673

The project aims to study the diversity of flora and fa present in Ezhanthala, Thekkuthode, and Konni Reserve Forest. T sample sites (1 and 2) were identified with the help of a Quadra made by using PVC pipes. Plants and animals species were collect From the study, it is observed that from the 1st site about 34 trees a 2nd site about 47 short plants were identified. The trees and plan belong to 16 genera and 12 families. Flora samples were collecte from the 1st site and the fauna were collected from the second site. B applying Simpson diversity index the diversity of flora and fauna from the two sites were analyzed. From the analysis it is observed that the index range between 0 and 1. Hence it indicates a high range of diversity among plants and animals in the sampling sites.

COMMUNITY BASED ECOTOURISM A STUDY FOCUSED ON PERIYAR TIGER RESERVE

Benny George

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Abstract

Wildlife Sanctuaries and National Parks are the protected areas identified for ecotourism activities since the declaration of the International year of Ecotourism in 2002.Ecotourism is a well-defined approach explain in management of tourism impacts and conservation of nature in a way to maintain a fine balance between socioeconomic development and conservation of natural resources in protected areas. Community-based tourism is an innovative approach to link tourism with the benefits of local people. This construct has gained acceptance in the third-world countries in the recent decades. The term "community-based tourism" outlines social dimension in ourism development. This is a form of ecotourism that empowers ocal people to stake control over ecotourism resources and manage enefits. Most of developing have experience commu nity-riented tourism and managed tourism for alleviating poverty, hunger, nalnourishment etc. This research work focused on the potential of cotourism on community development in and around Periyar Tiger Reserve (PTR) with an aim to promote regional development.

Keywords: Ecotourism , Community Development, Empowerment, Local people

CONSERVATION OF A MULTIPURPOSE MEDICINAL PLANT, *RUBIA CORDIFOLIA* L. (INDIAN MADDER) USING BIOTECHNOLOGY

Devi Priya M.*, Asha Saji, Vinod Kumar T.G. and Francis Mathew

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Abstract: The plants are cherished as the chief resource for healthcare products attributed via synthesizing diverse array of bio-molecules through various metabolic alterations. Over exploitation of such resources can intimidate its existence. Tissue culture is an alternate method for propagation and conservation of these precious resources. *Rubia cordifolia* is regionally considered as vulnerable, rare and/or endangered. So an improved, efficient, reproducible and reliable *in vitro* clonal propagation protocol is to be adopted for conservation of germplasm. MS medium fortified with benzyl adenine (BA) alone or in combination with spermine (polyamine) was used for the study. After one month of inoculation, 2.5 µM of BA and 2.0 µM spermine (2.13) endorsed the instigation of multiple shoot through axillary bud proliferation in a short span of time. *In vitro* produced microshoots were subjected to *ex vitro* rooting by treating with 2.5 mM IBA (79.17% response). Under green house condition, all the rooted plantlets showed more than 90% survival. So, this regeneration protocol ensures production of clonally uniform plants of *R. cordifolia*.

Key words: nodal explants, benzyle adenine, spermine, multiple shoots

FOOD PREFERENCE & FEEDING BEHAVIOUR OF ODOIPORUS LONGICOLLIS (BANANA PSEUDOSTEM WEEVIL)

Feba Rachel Chacko and Aleyamma Karuvilla*

* HOD, Department of Zoology, St. Thomas College

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ABSTRACT

Banana one of the oldest fruits known to mankind, is
fourth most important food crop after rice, wheat and maize.
and plantains are cultivated over 100 countries throughout
regions. The unceasing struggle between man and his insect
started even before the dawn of civilization. The production of
in severely affected due to the infection by a spectrum of insect
at various stages of crops. Odioporus longicollis commonly
banana pseudo stem weevil (BPW), is the major pest of
present study Odoiporuslongicollis were collected from
banana plants , life cycle , feeding efficiency and behaviour of
instar, host searching and host varietal preferences were studied.
make experimental habitat, the egg is reared in the Nendren stem.
then observed on every day. Then the old stem is replaced with
one in an interval of 3 - 4 days . The changes were recorded. To
experimental habitat , the egg is reared in the Nendran stem . It is
observed on every day . The same procedure is repeated for all
varieties of banana stem collected (Nenthran, Njalipoovan,
Palayamkodan, Chenkadhali, Poovan, Robesta). For the present
the host preference of Odoiporuslongicollis, done in an experimental
set up. Different varieties of banana stem were collected from the
fields. Odoiporuslongicollis were collected from infected banana plant.

ANALYSIS OF DIFFERENT PHYSICO CHEMICAL PARAMETERS AND HEAVY METALS OF FIVE DIFFERENT WATER BODIES OF FLOOD AFFECTED AREA AT MAMMUKKU, RANNY, KERALA.

Gaurilakshmi and *R. Aruna Devy

*Department of Zoology, St.Thomas College, Ranni – 689673

ABSTRACT

Physical and Chemical parameters degrade water causing health issues in living organism. The present study examines the variation in these parameters in Pampa River at Ranni. Water were collected from 5 different source at mamukku Ranni and tested at SPCI kollam. And the study showed that the water quality at Ranni is fit for domestic use in term of heavy metals. But BOD levels were elevated due to the presence of organic waste that could have been occurred due to waste (Chemical and Sewerage) in water bodies.

INTRODUCTION

Pampa River is the third largest river in the South Indian State of Kerala. It originator from Pulachimalai hill in the Peerumedu Plateau in the Western Ghats at an altitude of 1,650 meter and flows through Chittar, Vadasserikada, Ranni etc before emptying into the Vembanadu Lake, while another branch flows directly Via Karuvatta into Thottappally Spillway. The River enriches Pathanamthitta, Alappuzha districts of Kerala State [1].

Physical and Chemical Parameters include heavy metals, trace organic compounds, TDS, BOD, PH, etc for drinking water quality.

POST-FLOOD KERALA: CHALLENGES AND OPPORTUNITIES AHEAD

Rigy Idiculla
Assistant Professor, St Thomas College, Ranni

Abstract

The unprecedented rain and floods which hit Kerala in August 2018 has hardly any parallels in the history of Kerala. The flood that devastated the state was thanks to the unusual rainfall it received since the onset of monsoons in June 2018, which was 42% more than what it usually received. Heavy rainfall, opening of dams on large scale, landslips and landslides increased the gravity of the situation. About 450 people lost their life, millions were displaced, lakhs of wells and toilets were destroyed, houses, schools, private and public residential buildings, public infrastructure etc were partially or completely destroyed. It has been estimated that in order to rebuild Kerala the government will have to raise about Rs 31,000 crore or more. Against this backdrop the paper attempts to study the impact of floods on Kerala and challenges and opportunities in store for it.

Keywords: floods, rebuild, displacement, infrastructure

The floods Kerala witnessed in 2018 was different from that it witnessed earlier because it was quite widespread, it affected 12 out of 14 districts of Kerala and the rainfall was so heavy that it exceeded 164% more than the normal rainfall. "The abnormally high rainfall that Kerala has received this year has led to over two dozen deaths in landslides and flash floods as well as the opening of sluice gates of 24 dams which is a wakeup call on the dangers posed by extreme weather (Mathew, 2018). Reports suggest that the 10 worst

GREEN BANKING PRACTICES IN INDIA

Roni Jain Raju
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ABSTRACT

In present scenario, the banking industry is playing a vital role in sustainable development of the world. In this aspect, the RBI has emerged the new concept called "Green Banking". Green banking as a concept, is a protective and smart way of thinking towards future sustainability. And it is creating a buzz in the financial world. It is a form of banking taking into account the social and environmental impacts and its main motive is to protect and preserve environment. In the present era, we are facing a lot of environmental issues. So the green banking has its own importance and it plays a vital role to avoid such issues for an extend. In the present chapter, the researcher aims to study the benefits and challenges of green banking practices in India.

Keywords: Green Banking

INTRODUCTION

The banking industry influences economic growth and development, both in terms of quality and quantity, leading to a change in the nature of economic growth. There for banking sector plays an important role in promoting environmentally sustainable and socially responsible investment. Banks may not be the polluters themselves, but they usually have a banking relationship with some companies

ECOTOURISM AND SUSTAINABILITY A THEORETICAL EXAMINATION

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Abstract

According to the World Bank, Tourism is the fastest and big growing industry in the world. It has become the popular global lei activity that relies mainly on physical environment. In the er heightened environmental consciousness and accessibility to rem areas, Ecotourism has emerged as one of the fast growing marke tourism industry that essentially based on natural environment. ecotourism is defined as 'Responsible travel to natural areas conserves the environment and improves the well-being of local pe (TIES, 1990). Ecotourism is considered as successful when it redu the environmental impacts of tourism pace while benefits for l community culturally and economically as well as foster environm education. The most valuable contribution of ecotourism into l environment is preservation of biodiversity. Wildlife and nat surroundings are the assets of ecotourism, therefore, the eco-develo highly focused on conserving and protecting the site. However weak operational management may lead to the presence of mas tourists and infrastructures in undisturbed areas. Ecotourism can different impacts and that can be divided into two major catego negative and positive. Negative impacts are always connected t natural resources, local culture and disturbance arose by ecotou in their development whereas positive impacts have always

A SURVEY ON THE MATHEMATICAL APPLICATION IN ENVIRONMENTAL SCIENCE

Shruthi Mariam David

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Mathematics is a branch of science with incredible gnificance and it is very difficult to do anything without its plication. The environmental sciences concern everything about e world around us. Mathematical concepts such as counting, asuring, locating, abstracting, quantification of shapes and motions, indicate a strong connection between human beings and their vironment. Nowadays one of the major challenges for living beings nvironmental problems caused by natural disasters, harmful effect human activity, improper utilization of natural resources etc. In s situation we can go through the essential role of mathematical plications to identify the balanced structure of nature, to rectify the vironmental and social problems, to acquire sustainable velopment. Many developmental challenges can be studied by thematical models. Recently, applied mathematical fields such as screte optimization and combinatorics, mathematical modelling in pology and algebra, stochastic algorithms, linear and non linear ogramming provide a meaningful outcome for the development of nkind. This article gives a survey on how mathematics especially thematical models can be applied in the biodiversity measurement, imate change, pollutions control, natural disasters management and stainable development.

Key words: mathematical modelling, sustainable velopment.

CONSERVATION OF COMMERCIALLY IMPORTANT WHELK, *BABYLONIA SPIRATA* (LINNAEUS, 1758) (NEOGASTROPODA: BUCCINIDAE) THROUGH HATCHERY TECHNOLOGY SEED PRODUCTION

Sreejaya. R

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Abstract

In India possibilities of destruction of *Babylonia* egg masses and juvenile whelk due to intensive fishing. Hatchery production and sea ranching of the seed has been identified as a conservation measure to such population damages. So attempts were made to understand the spawning and larval development for the seed production of *Babylonia spirata* to provide a baseline data to standardise the culture of the species.. The activities specific to the spawning season such as copulatory behaviour, spawning behaviour, brooding and feeding behaviour were observed and recorded. The brooders took 3-5 days for the acclimatization i n the hatchery conditions for spawning The fecundity, spawning period and spawning frequency of spawning were monitored and recorded. The experiment was in triplicate. The presence of substrate in the spawning tank is an essential factor for the production of healthy egg capsules. The brooder size has a positive correlation with the size of the egg capsule and thus the fecundity. The average number of eggs produced per female was found to be 40±5. Brooding is not essential for further development inside the egg capsule. For the optimization of the conditions for spawning and the various factors which influence spawning activity in controlled

GC–FID METHOD FOR QUANTIFICATION OF LEAF ESSENTIAL OILS OF *SYZYGIUM ARNOTTIANUM* WALP. (ENDEMIC) AND ALLIED SPECIES FROM THE WESTERN GHATS OF KERALA.

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Abstract

The genus *Syzygium* (Family: Myrtaceae) is widely spread in the Western Ghats of India. Many species have been used for edible purpose while some are medicinally very important. Essential oils are important as source of valuable aroma chemicals, flavoring components and bioactive agents present in all species of *Syzygium*. Fresh leaves of four species of *Syzygium* viz., *S. arnottianum* Walp., *S. laetum* (Buch. Ham.) Gandhi, *S. lanceolatum* (Lam.) Wight & Arn. and *S. zeylanicum* (L.) DC. var. zeylanicum were collected from the Western Ghats and were employed to identify and quantify its essential oil composition. The essential oils were isolated by hydro-distillation of the fresh leaves for 3 h. using a Clevenger type apparatus. The oils were dried over anhydrous sodium sulphate and the GC-FID analysis was done on a Varian CP-3800 gas chromatograph fitted with CP Sil 8CB fused silica capillary column (30 m, 0.32 mm i.d., film thickness 0.25 µm) with FID detector using nitrogen as a carrier gas at flow rate of 1mL/ min. The essential oil components were identified based on by MS library search (Wiley 2.75), relative retention indices calculated with respect to homologous

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ഉള്ളടക്കം

കേരളത്തിന്റെ കാർഷിക സാംസ്കാരവും ഓമല്ലൂർ വയൽ വാണിഭവും

ഡോ. ദീപ റോസ്‌ലിൻ ജോസഫ്*

കുടുംബം, സമുദായം, മതം, സാമൂഹിക നിയന്ത്രണം, വിഭിന്നജനവർക്ഷങ്ങളുടെ ബന്ധം, സംസ്കാരം, കലാപഠനം, വ്യവസായം തുടങ്ങിയവയെല്ലാം സാമൂഹിക വിജ്ഞാനീയത്തിന്റെ ഭാഗമാണ്. ഫോക്‌ലോർ ഘടനയുടെ മുഖ്യവിഷയമാണ് സാമൂഹിക സമ്പ്രദായങ്ങളും സംസ്കാരവും. കാടത്തിൽ നിന്ന് കാർഷികവൃത്തിയിലേക്കും പിന്നീട് വ്യാവസായികതയുടെ നാഗരിക വൃത്തിയിലേക്കും വളർന്ന മനുഷ്യന്റെ ഭൗതികവും മാനസികവുമായ വളർച്ചയെ സംസ്കാരം കുറിക്കുന്നു. പാരമ്പര്യം പകർന്നു നല്കിയ സംസ്കാരങ്ങൾ പ്രാചീനതയുടെ തനിമ ചോരാതെ ഇന്നും നിലനിർത്തിപ്പോരുന്ന പ്രദേശങ്ങളുണ്ട്. ആധുനിക സമൂഹത്തിന്റെ ഗൃഹാതുരതയുടെ ഭാഗമായി മാത്രമല്ല കൂട്ടായ കൂട്ടായ പ്രവർത്തനങ്ങളിലൂടെ സാംസ്കാരിക മൂല്യം വളർത്തുന്ന പല സംസ്കാരങ്ങളും വർത്തമാനകാലത്തും പ്രസക്തമാണ്. പ്രാചീനജനതയുടെ ജീവിതാവലംബമായിരുന്ന കാർഷികവൃത്തിയുടെ ഭാഗമായി നിലനിന്നിരുന്ന ഇപ്പോഴും സജീവമായി നിലനിർക്കുന്ന വ്യാപാരമേളയായ ഓമ

*അസിസ്റ്റന്റ് പ്രൊഫസർ, ചരിത്രവിഭാഗം, സെന്റ് തോമസ് കോളേജ്, റാന്നി

വിശ്വാസവും മനഃശാസ്ത്രവും - എരുമേലി പേട്ടതുള്ളലിനെ ആധാരമാക്കി ഒരു പഠനം

ഡോ. വീണ. എസ്*

ഒരു ദേശത്തിന്റെ പെരുമ ആ ദേശത്തിലെ വിശ്വാസങ്ങളും അനുഷ്ഠാനങ്ങളുമായി ബന്ധപ്പെട്ടുനിൽക്കുന്നു. അതിന്റെ സവിശേഷമായ മൂല്യങ്ങൾ ലോകതലത്തിലേക്കു പടരുമ്പോൾ അത് സാംസ്കാരികചരിത്രത്തിന്റെ അടയാളങ്ങളുമാകുന്നു. ഏറെ സവിശേഷതകളുള്ള ഒരു അനുഷ്ഠാനമാണ് എരുമേലി പേട്ടതുള്ളൽ. പ്രദേശവാസിയെന്ന നിലയിൽ ദേശത്തിന്റെ സാംസ്കാരികത്തുടിപ്പുകൾ അടയാളപ്പെടുത്തുകയെന്ന ദൗത്യമാണ് ഈ പ്രബന്ധാവതരണത്തിലൂടെ നിർവ്വഹിക്കാൻ ശ്രമിക്കുന്നത്. കേരളത്തിലെ എന്നല്ല ഇന്ത്യയിലെതന്നെ ഏറ്റവും പ്രശസ്തവും പ്രധാനവുമായ ശബരിമല തീർത്ഥാടനത്തിലെ ഒരു പ്രധാനകവാടമാണ് എരുമേലി. അവിടെ നടക്കുന്ന പേട്ടതുള്ളൽ തീർത്ഥാടനയാത്രയിലെ ഏറ്റവും പ്രധാനമായ ഒരു ചടങ്ങാണ്. ആദ്യകാലങ്ങളിൽ കന്നി അയ്യപ്പന്മാർ എരുമേലിയിൽ പേട്ടതുള്ളിയശേഷം മാത്രമാണ് മലകയറിയിരുന്നത്. ധനുമാസം 27-ാം തീയ്യതി നടക്കുന്ന അമ്പലപ്പുഴ, ആലങ്ങാട്ട് സംഘക്കാരുടെ പേട്ടതുള്ള

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