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2019-20

Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five year

Sr. No	Name of the Book/ Chapter/Papers Published	Author	ISSN/ISBN Number
1	Business Taxation	Asst. Prof. Sarika Jagtap	978-93-90570-85-0
2	Biodiesel Production from Fungi	Prof. Sheetal Mhaske	ISSN - 22789308
3	Biodiesel production from waste cooking oil	Prof. Sheetal Mhaske	ISSN - 22789308
4	Application Of Bacteria (Staphylococcus aureus) Screened From The Soil For The Degradation Of Plastic	Prof. Sheetal Mhaske	ISSN - 22789308
5	Biodiesel and Bioethanol Production from Food Waste	Prof. Sheetal Mhaske	ISSN - 22789308
6	Comparative study of green synthesized Selenium nanoparticles from Broccoli (Brassica olaracea) and Resins (Vitisvinifera)	Prof. Sachin Chavan	ISSN - 22789308
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11	Synthesis of silver nanoparticles by using leaflet extracts of Nephrolepisexaltata L. and evaluation of antibacterial activity against human and plant pathogenic micro-organism	Prof. Sheetal Mhaske	ISSN - 22789308
12	Endophytic bacteria: Optimization of isolation procedure from various medical plants and their preliminary characterization	Prof. Sheetal Mhaske	ISSN - 22789308

Rajmata Jijau S.P.M.'s Arts, Com. & Sci. College Landewadi, Bhosari, Pune-39.

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About the Book

This book of **Business Taxation** presents the concepts and practices of the direct tax in India. This book provides the students with the broad framework of tax in accordance with the different provisions and guidelines of Income Tax Act, 1961. The book is designed to bridge the gap between theory and application. It covers a wide range of university syllabus topics.

About the Author

Dr. Thomson Varghese is currently working as **Head of Department**-BBA/BBA-IB/BBA-HTM in Shree Chanakya Education Society's, **Indira College of Commerce & Science at Wakad, Pune**. He has teaching experience of 10 **years** for Undergraduate & Post graduate courses in Commerce & Management. He specializes in various subjects which include Auditing & Taxation, Business. Accountancy, Cost & Works Accounting, Financial Management, Marketing etc. He was awarded Innovative Leadership Award at ABP Mazha, 10th National Educational Awards at Taj Land Ends, Mumbai. He has presented & published various research papers in conferences at International & National level. His research interests are in the field of Accounting, Marketing, Corporate Social Responsibility etc. He was also invited as guest Speaker & Resource Person on numerous occasions.

Prof. Sarika Vishal Jagtap is currently working as **Assistant Professor** at **Rajmata Jijau shikshan Prasarak Mandal**, ACS College, Bhosari. She has done M.B.A (Financial Management), M.Com (Costing). She has intrest area Business Accounting, Cost Accounting, Business Organization and system, Personality development, Management Accounting, Business Taxation, Analysis of Financial Statement, Financial Services. She is having **10 years** teaching experience.

Savitribai Phule Pune University, BBA 4th Semester

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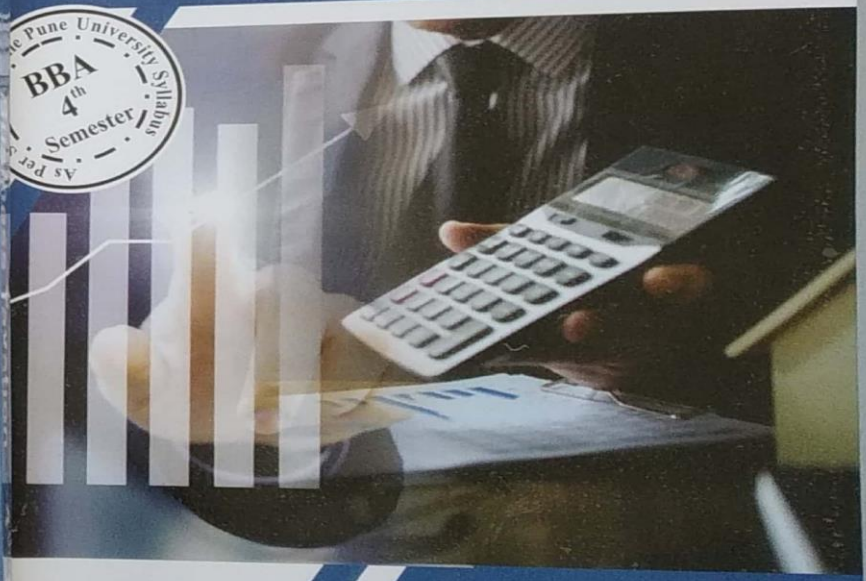

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INDEX

B) ABSTRACT

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Biodiesel Production from Fungi

(Aspergillus niger, Aspergillus flavus & Mucor circinolloids)

Jyoti T. Patil, Nilesh R. Nawale, Prof. Sheetal Mhaske
Rajmata Jijau Shikshan Prasarak Mandal's
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Abstract

Due to the awareness of adverse effects of conventional fuels to environment and the frequent rise in crude oil's price, the need for sustainable and environment friendly alternate source of energy has gained importance in recent years. Biodiesel is proved to be the best replacement for diesel because of its unique properties like significant reduction in greenhouse gas emissions, non-sulfur emissions, non-particulate matter pollutants, low toxicity and biodegradability. The scarceness of fossil based fuels and the environmental impact produced by the conventional sources of energy over the planet, has lead new research work to seek the sustainable sources of clean energy. Biofuel is committed to becoming a worldwide leader in the development and deployment of renewable energy resources. Biodiesel is an alternative fuel, made from renewable biological sources. Biodiesel can also be produced from microbial sources like algae, bacteria and fungi. Fungi exhibit the capacity to accumulate intracellular lipids in excess of 70 percent of their biomass during metabolic stress periods. Fungal lipids as a source for biodiesel was less studied. Hence the fungal lipids source as diesel fuel was taken for this study. The study documented the potential of isolated filamentous fungus *Aspergillus sp.* as whole cell biocatalyst for biodiesel production using potato dextrose broth medium (PDBM) and Yeast Peptone Glycerol medium (YPGM) as substrates. PDBM showed improvement in both biomass production (13.6 g dry weight/1000 ml) and lipid productivity (23.3%) with time. Lipid extraction was performed by direct (DTE) and indirect (IDTE) transesterification methods. DTE showed higher transesterification efficiency with broad spectrum of fatty acids profile over IDTE.

Key words: Fungal lipids, Alternative fuel, Biodiesel, Transesterification, Fatty acid methyl ester (FAME), Saturated fatty acid (SFA),Substrate degradation.

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Biodiesel production from waste cooking oil

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ABSTRACT

Due to the awareness of adverse effects of conventional fuels to environment and the frequent rise in crude oil's price, the need for sustainable and environment friendly alternate source of energy has gained importance in recent years. Biodiesel is proved to be the best replacement for diesel because of its unique properties like significant reduction in greenhouse gas emissions, non-sulfur emissions, non-particulate matter pollutants, low toxicity and biodegradability. This paper reviews the pretreatment step, the physical and chemical properties of waste cooking oil, Esterification, Trans-esterification and production of Biodiesel from waste cooking oil by various methods and catalysts reported so far. The factors affecting the process parameters reported are studied and the point of interest focuses on their Alcohol to oil ratio, Reaction temperature, Catalyst both qualitative and quantitative scope. The optimum condition is investigated and the exhaust emissions of Biodiesel and Petroleum diesel are compared.

Keywords: Biodiesel, Esterification, Trans-esterification, FAME (Fatty Acid Methyl Ester),FFA (Free Fatty Acid),WCO (Waste Cooking Oil),WVO (Waste Vegetable Oil), WFO (Waste Frying oil).

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Application of Bacteria (Staphylococcus Aureus) Screened From the Soil For The Degradation Of Plastic

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Abstract

Uncontrolled use of plastics, primarily low density and high density polyethylene (LDPE and HDPE) for various purposes such as packaging, transportation, in industry and in agriculture in rural as well as urban areas is a rising concern as the plastic usage surpasses 260 million tonnes per annum globally. The applications and advantages of plastics are many, yet the drawbacks cannot be overlooked. Although there are conventional strategies of plastic disposals such as incineration, recycling and landfills, they have their own shortcomings. Incineration releases hazardous end products, availability of land is a chief issue for landfills, while recycling poses a challenge during the collection of wastes. Biotechnological strategies can effectively degrade polyethylene garbage better when compared to the current conventional approaches and can contribute for long term bioremediation. The purpose of our project was to isolate bacteria from soil which is less Harmful and more effective towards Degradation of plastic. Bacterium (*Staphylococcus Aureus*) was one of the bacteria which was found to have the ability to degrade the plastic. Minimal synthetic media includes (NH_4NO_3 (1.0g/l), $MgSO_4.7H_20$ (0.2 g/l), K_2HPO_4 (1.0 g/l), $CaCl_2.2H_2O$ (0.1 g/l), KCl (0.15 g/l), Yeast extract (0.1 g/l), $FeSO_4.6H_2O$ (1.0 mg/l), $ZnSO_4.7H_2O$ (1.0 mg/l), $MnSO_4$ (1.0 mg/l) devoid of any carbon source was used for degradation experiments. The efficacy of microbes in the degradation of plastics were analyzed in liquid (shaker) culture method, *Staphylococcus aureus* showed degradation of plastic in 1 month (30% weight loss/month) period. This work reveals that *Staphylococcus aureus* posses greater potential to degrade plastics when compared with other bacteria.

Keywords : *Staphylococcus aureus*, LDPE, HDPE, Bioremediation, Carbon.

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Biodiesel and Bioethanol Production from Food Waste

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Abstract

In order to solve the pollution caused by food waste, research was carried out to test the feasibility of biodiesel and ethanol production from food waste. With separation process, waste oil and rudimental solid component of food waste were obtained. Chemical synthesis was utilized for biodiesel production with oil and fermentation was chosen for ethanol production from solid parts. The result demonstrated that biodiesel produced from waste oil were mixed fatty acid methyl esters with the main components of Octadecenoic acid methyl ester, Octadecadienoic acid methyl ester and Hexadecanoic acid methyl ester. Since they were similar to the composition to those produced with other traditional raw biodiesel materials, it demonstrated that this was a possible way to utilize waste oil. Furthermore, the solid part of food waste could produce 44 g/L ethanol under 35°C for 3 days with yeast cultured. Ethanol and biodiesel production from food waste could to a large extent save the production cost as well as solve the pollution problem.

Keywords- : Bioethanol, alternative fuel, Biodiesel, Esterification, Trans-esterification, FAME (Fatty Acid Methyl Ester), FFA (Free Fatty Acid).

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Comparative study of green synthesized Selenium nanoparticles from Broccoli (Brassica olaracea) and Resins (Vitis Vanifera)

Rohini H. Parmar, Aniket K. Patole, Abrar Ahmed N. Khan,
Prof. Sachin Chavan
RJSPM's ACS College, Bhosari, Pune-39

Abstract

In recent years, nano biotechnology has emerged as an elementary division of modern science and a novel epoch in the fields of material science and is receiving global attention due to its ample applications. Various physical, chemical, and biological methods have been employed to synthesize nano materials. Biological systems such as bacteria, fungi, actinomycetes, yeasts, viruses, and plants have been reported to synthesize various metal and metal oxide nanoparticles. Among these, biosynthesis of nanoparticles from plants seems to be a very effective method in developing a rapid, clean, nontoxic, and eco-friendly technology. The use of plant biomass or extracts for the biosynthesis of novel metal nanoparticles (silver, gold, platinum, and palladium) would be more significant if the nanoparticles are synthesized extra-cellularly and in a controlled manner according to their dispersity of shape and size. Owing to the rich biodiversity of plants, their potential use toward the synthesis of these noble metal nanoparticles is yet to be explored. The green synthesis of Selenium nanoparticles from Broccoli (Brassica olaracea) and resins (vitis vinifera) fruits by using selenious acid (H_2SeO_3) solution. This mixture was stirred which gives a dispersion of Se NP's conjugated with B. olaracea and V. vinifera secondary metabolites. The work was focused to determine the phytochemical analysis of leaves extract, green synthesis, its characterization and its applications. The suspension solution confirms the formation of Se-NP showed at 445nm and 410nm by UV analysis for B. Olaracea and V. vinifera respectively. The effect of these nanoparticles will be studied on antibacterial, antifungal, antioxidant, plant growth. Se-NP exhibits efficient Congo red dye degradation in the presence of sunlight. The present results support the advantages of green method for the production of Se NP's having potential activities.

Keywords: Selenium nanoparticles, H_2SeO_3(selenious acid), nanoparticles, Nano biotechnology, phytosynthesis.

Efficacy and Safety Studies of Commercial Antivenom Use for the Treatment of Snakebite.

Mr. Bhushan Wagh[1], Dr.Arun Waghmare[2], Dr. Nitin Salavi[2] Dr. Sadanand Raut[3], Prof. Sachin Chavan[4]

Premium serum & vaccine pvt.ltd. At Narayangaon, pune, Maharashtra, India.

Vighnahar Nursing Home at Narayangaon, Pune, Maharashtra, India.

ABSTRACT

Antivenom is the mainstay of treatment of snakebite envenomation.Mortality and morbidity due to snake envenomation is one of the important public health problems in tropical or subtropical areas .Annually 2.5-3 lack people are bitten by snakes InIndiaaccording to WHO 40-50 thousand people die annually and many get physically handicapped. Most of these are young farm workers ,laborerschildren's and women's .Incidence of snake bite in Junnar and Ambegaon talukas of Dist-pune is increasing and most of the venomous snake bite victims are treated at "Vighnahar Nursing Home Narayangaon", Maharashtra. We have done retrospective study of snakebite victims treated at VNH. Total cases admitted in one year were studied for clinical manifestations, management and outcome. Thosewith clinical manifestations with of envenomations & treated with anti-snake venom(ASV)& other emergency medical management were included in study. The 131 patients registered during April 2019 – January 2020, out of 52(39%) patients non- venomous bite& 79(60%) patients venomous snake bite (55(41%)patients Russell's Viper, 11(8.3%) patients Common krait, 11(8.3%)Patients cobra, 1(0.7%)patients bamboo pit viper &1(0.7%)patients green pit viper)were treatment at "Vighnahar Nursing Home " At Narayangaon,pune.The only effective treatment against envenoming involves intravenous administration of antivenoms that comprise antibodies that have been isolated from plasma of immunized animals, typically horses.However, the mainstay of management is anti-snake venom (ASV), which is highly effective, but liable to cause severe adverse reactions including anaphylaxis.So that,the high Anti-snake venom dose given to the snakebite patients ,sometime effects of Anti-snake venom reactions an affects on body i.e. swelling, fever, dry cough, itching, abdominal colic and increasing heart rate, rashes on body etc.There are three types of anaphylactic reactions:Early anaphylactic reactions; Pyrogenic anaphylactic reactions & Late anaphylactic reactions.

The only use to a good quality of anti-snake venom (ASV) for treatment of snakebite person. Also, if you take the patients to the hospital as soon as possible, he will be quickly cured and can go home as soon as possible.Most of the victims are in their productive age (Between 21-40)years and are often main breadwinners, leading to a great negative impact on the economics of their families. Ultimately, the prevention reactions will depend mainly on improving the quality of Antivenom.There should be a vigilant approach towards prediction and prevention of Antivenom reaction for a better quality of health.

Keywords: Antivenom, Antivenom management; adverse reactions; Clinical management; Efficacy of Antivenom.

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Synthesis of copper nanoparticle using Syzygium aromaticum and evaluation of antimicrobial, antifungal and antioxidant activity

Bhaghyashree Jat, Prof. Purnima Pawar
RJSPM's ACS College, Landewadi, Bhosari-39

ABSTRACT

Cu NPs were prepared from Syzygium aromaticum (clove) bud extract. The nanoparticles structural properties and surfacemorphology formation were studied by X-Ray diffraction, SEM, TEM. Ultraviolet-visible (UV-Vis) absorption spectrum showed the absorption peak of CuNPs at 305 nm. Thehigh crystalline nature of CuNPs with an (FCC) phase isobvious from the X-ray diffraction (XRD) pattern. The greatestintensity peak located at (111) orientation. Crystallite size was found to be ~12 nm. The obtained formation was homogeneousand relatively spherical and cluster nanoparticles. The antimicrobial studies of CuNPs effect against Bacillus subtilis, Escherichia coli and pronounced fungicidal activity against Candida albicans of microorganisms. The diameters of the inhibition zones of CuNPs were of Bacillus subtilis (42mm) and Escherichia coli (33 mm) at 200 µg/ml concentration. Thediameter of the inhibition zones of CuNPs against the fungus strains was of Candida albicans (50 mm) at 200 µg/mlconcentration. The antioxidant properties of extract of clove was evaluated using different antioxidant tests;reductive potential, free radical scavenging, superoxide anion radical scavenging and metal chelating activities. The total phenolic content was measured by using folin-Ciocalteau method while totalflavonoid content was determined using AlCl3 calorimetric method in clove bud extract. The present study suggests that methanolic extract of flower buds of Syzygium aromaticum (SAf) could be used in managing oxidative stress and hyperglycemic condition.

Keywords: Nanoparticles, Phytosynthesis, Syzygium aromaticum, Flavanoid.

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Study of morpho-physiological effect of selenium on salinity-stressed mung *(Vigna radiata)*

Abrar Ahmed N. Khan, Aniket K. Patole, Rohini H. Parmar, Sachin Chavan
RJSPM's ACS College, Bhosari Pune.

Abstract

Salinity is one of the most important abiotic constraints that adversely affect plant growth and development throughout the world. Selenium (Se) is a micronutrient required by plants in small concentration to aid their growth. This current study was undertaken to determine the effects of different salt concentrations, generally on growth and physiology of Se-primed and unprimed Mungs. Plants raised from primed seeds show vigorous start and greater stress tolerance primarily due to more efficient energy metabolism, osmotic adjustment, enlarged embryo, enhanced enzyme activation and quick cellular defense responses.

Seeds were primed with a variety of sodium selenate solutions and the changes in the level of antioxidants examined, as a function of Se levels. Mung seeds were soaked for eight hours in 0, 100, 200, 300mg/L Selenate concentrations. This was subjected to 0, 100, 200, 300 and 400mM of Sodium chloride(NaCl) concentration, respectively. The study revealed that Se increased production/expression of superoxide dismutase and catalase enzymes under salinity stress, thus growth of mung plants was improved. We conclude that Selenium act as growth promoter for plants which are under salinity stress.

Keywords: Selenium, priming, salinity, stress condition, chlorophyll estimation, Vigna radiata, antioxidant.

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Attenuation of Drought Stress in *Vigna Radiata* Seedlings with Exogenous Application of Mg2+, K+ and H2O2

Aniket K. Patole[1], Abrar Ahmed N. Khan[2], Rohini H. Parmar[3],Prof. Sachin Chavan[4].
RJSPM's ACS College, Bhosari, Pune-39

Abstract

It is well known that drought stress at the early stages of plant life, shortly after germination, may have devastating impacts as both the root system is not yet fully established, in one hand, and stomatal control is not yet fine-tuned. However, drought stress at this early life stage did not attract much research attention, because it is easily overcome by farmers through an accurate choice of seedling dates. Drought stress at later phenological stages received most attention, particularly the comparison between drought effects on the vegetative phases and in the reproductive phases over grain production. It is now well established that the effects of stress may vary significantly with the phenological stage of plants. Reproductive stages are generally more sensible to stress than vegetative ones, but differences can also be made between different phases of the reproductive stage. Exogenousapplications of different substances are known to decrease the effects of various abiotic stresses, including drought stress. The aim of this study was to evaluate the effect of Mg2+, K+ and H2O2 in developing drought stress tolerance in *Vigna radiata*. *Vigna radiata* seedlings were exposed to 10,20 and 30 mM Mg2+, K+ and 10,20 and 30 µM H2O2 concentrations twice at an interval of two days for up to 20 days after germination. Drought stress decreased relative water content (RWC), chlorophyll content and increased proline, H2O2, soluble protein in *Vigna radiata* seedlings. The aim of this experiment is to See the effect of Mg2+, K+ & H2O2 on *Vigna radiata* to supplements & help in to tolerate drought stress.

Keywords: Drought Stress, Mg2+, K+, H2O2, RWC, Chlorophyll determination , Proline Profiling , SDS-PAGE .

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Synthesis of silver nanoparticles by using leaflet extracts of Nephrolepis exaltata L. and evaluation of antibacterial activity against human and plant pathogenic micro-organism

Prasad P Thorat, Prof. Sheetal Mhaske.

ABSTRACT

Silver nanoparticles were synthesized by using leaflet extract of a fern Nephrolepis exaltata (L.) which reduces silver ions to silver nanoparticles. Synthesized nanoparticles were confirmed by UV-Visible spectrophotometer and UV-Visible absorption spectra of the reaction mixture showed λmax at 420 nm. The average particles size was confirmed by XRD peaks was 24.76 nm. Antibacterial efficiency of silver nanoparticles will be evaluated by disc diffusion assay method. Silver nanoparticles will be exhibited antibacterial activity against Escherichia coli, Salmonella Typhimurium, Listeria monocytogenes, Pseudomonas arogenosa, Staphylococcus aureus, Bacillus Subtilis, Aspergillus niger, Candida albicans, Shigella, Vibrio Cholera, Vibrio Parahemolyticus and Xanthomonas axonopodis pv. Punicae. This cost-effective, eco-friendly and easily scald up biosynthesis method of silver nanoparticles using leaflet extract of a fern Nephrolepis exaltata (L.) will be compatible for pharmaceutical and medical applications.

Key-words: Silver nanoparticles, antibacterial activity, Nephrolepis exaltata L., XRD, UV-Visible spectrophotometer.

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A Study On The Activity Of Garbage Enzyme

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Abstract

Garbage enzyme, a fermented product from kitchen waste, water and brown sugar, is claimed in the media as a multipurpose solution for household and agricultural uses. The decomposable waste thrown into the environment can be used to produce a value added bio-product which in turn reduces the pollution caused by garbage. Garbage enzyme is one such value added product produced by fermentation of organic solid waste. This study was conducted to evaluate the properties and characteristics of garbage enzyme which has advantages and can be used for many purposes. The result showed the garbage enzyme solution possesses proteins, glucose, acid, carbohydrates, microbial growth, and yeast. The pH was found to be acidic (~2), the glucose concentration decreased with time and the microbial growth increased with fermentation period.

***Keywords*:** Garbage enzyme, acidic, properties andcharacteristics, decomposable waste.

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Endophytic bacteria: Optimization of isolation procedure from various medicinal plants and their preliminary characterization

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Abstract

The aim of this study was to the isolate the Endophytic bacteria, optimize its isolation procedure and preliminary characterize the isolated endophytes.Ethanol, sodium hypochlorite, and mercuric chloride at various concentrations and duration were employed to optimize the surface sterilization for the isolation of endophytes from *Ricinus Communis* (Leaf, Stem and Root),*Ocimum sanctum* (Leaf),*Azadirachta Indica* (Leaf and Stem) and Microscopic and biochemical characterization of isolates were carried out. A total of 7 endophytic bacteria have been isolated from three medicinal plants. Combination of 2% sodium hypochlorite, 70% ethanol, and 0.1% mercuric chloride was found effective for the surface sterilization of Ricinus Communis (Leaf, Stem and Root), Ocimum sanctum (Leaf), Azadirachta Indica (Leaf and Stem), 70% ethanol and 2% sodium hypochlorite was found suitable for the surface sterilization. In preliminary screening 1 isolates were found Gram-positive cocci, 6 were found to be Gram-positive bacilli, 7 isolates showed positive results for endospore staining, 6 gave positive results for catalase test, 1 gave negative results for catalase test, 5 gave positive results for oxidase test and2 gave negative results for oxidase test. Ethanol, sodium hypochlorite, and mercuric chloride were found effective decontaminating agents in optimum condition. In the preliminary screening diverse colony, different shapes, color, margins, and textures were observed.

Keywords: Ricinus Communis, Ocimum sanctum, Azadirachta Indica, Surface sterilization,