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Evaluation of Antiproliferative activity of *Cocculus hirsutus* (L.) Diels fruit pulp against HEP-2 and MCF-7 cell lines

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ABSTRACT: Anthocyanins are natural pigments presented in leaves, flowers, vegetables and fruits of the plant. Recently, anthocyanins have been known to possess anticancer activities against different cancer cell lines. Anthocyanins were extracted (acidified methanol) from *Cocculus hirsutus (L) Diels.* fruit and confirmed by biochemical test. Antiproliferative activities were assayed with the standard MTT assay procedure against HEP-2 and MCF-7 cell lines. Anthocyanin extract showed significant antiproliferative activity and a dose-dependent effect was observed. With increasing concentrations of *C. hirsutus* fruit anthocyanin from 7.8 µg/mL to 1000µg/ml the percentage of growth inhibition on HEP-2 and MCF-7 cells increased progressively from 9.6% to 90.5% and 10.3% to 91.9%, respectively, in acidified methanol extract. The results showed the IC_{50} values of HEP-2 and MCF-7 cell lines were 140µg/ml and 99µg/ml respectively. These results suggest acidified methanol fruit extract of *C. hirsutus* fruit may be an attractive option for the "drug hunters" as a potential agent for the management of human cancer.

Keywords:*Cocculus hirsutus*, Anthocyanin, MTT assay, HEP-2 and MCF-7 cell lines.

1. INTRODUCTION

Cancer is a leading cause of death worldwide and according to World Health Organization (2010) cancer related deaths are projected to increase to over 11 million in 2030. The prognosis for a patient with metastatic carcinoma of the lung, colon, breast, or prostate remains a concern and accounts for more than half of all cancer deaths [1]. The vast structural diversity of natural compounds found in plants provides unique opportunities for discovering new drugs. Phenolic compounds, mainly flavonoids, are an example of bioactive compounds with possible beneficial effects on human health, including regulation of proliferation and cell death pathways leading to cancer [2]. The combination of phytochemicals in fruits and vegetables are thought to be critical to their powerful antioxidant and anticancer activity [3,4]. Anthocyanins are water soluble, flavonoid pigments, responsible for the attractive colours

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Green synthesis of silver nanoparticles from*Chaetomorpha Antennina* (Bory) Kützing and its Antibacterial Activity

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ABSTRACT: The A simple method for the green synthesis of silver nanoparticles (AgNPs) from Green algae *Chaetomorpha antennina* present in the coastal region of Kerela. The formation of silver nanoparticles was characterized by UV–vis and FTIR. The UV absorption spectra at 430 nm revealed the characteristic spectra of the silver nanoparticles. The Fourier Transform Infrared (FTIR) spectra indicated the presence of polyphenols or protein, alkenes, amide II and amide III of aromatic rings. Synthesised silvernano particles were tested for antibacterial activity against *Escherichia coli*, *Klebsiella pneumoniae*, *Streptococcus aureus* and *Pseudomonas aeruginosa*. At 100µl concentration, the largest zone of inhibition (18mm) was found in *E. coli* and *P. aeruginosa* while the least zone of inhibition (16mm) was observed in *K. pneumoniae* and *S. aureus*. This type of research could also serve as a model for the future development of nanomedicines or focused algal drug delivery.

KEYWORDS:*Chaetomorpha antennina*, Green algae, Ultraviolet visible spectroscopy, FTIR, Antibacterial activity.

1. INTRODUCTION

Nanotechnology is emerging as a rapidly growing field with its application in science and technology for the purpose of manufacturing new materials at the nano scale level [1]. Silver nanoparticles (AgNPs) are non-toxic to humans and are most effective at low concentrations against bacteria, viruses, and other eukaryotic microorganisms. AgNPs have potential applications in the biomedical field and has several advantages over physical and chemical methods due to its cost effectiveness, compatibility for medical and pharmaceutical applications as well as large scale commercial production[2].

Bio-extracts from a varied set of microorganisms, ranging from bacteria to fungi and algae, are used in the green production of nanoparticles as a reducing and sometimes capping agent[3]. AgNPs have been successfully synthesized using several plant extracts [4].

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Green Synthesis of Zinc oxide Nanoparticles from Citrus Peel Extract and their Antimicrobial activity

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ABSTRACT: A zinc oxide nanoparticle was green synthesised from the aqueous extract of the *Citrus limetta* peel. The presence of the ZnO nanoparticle was proved by the addition of zinc nitrate, which indicates presence by a colour change from yellow to brown. The zinc oxide nanoparticles are characterised by the UV-VIS analysis and the peek at 215nm indicates the synthesis of the nanoparticles. The antimicrobial activity was carried out using the Agar well diffusion method against *Escherichia coli, Klebsiellapneumoniae, Salmonella typhimurium, Pseudomonas pyogenes, Staphylococcus aureus*, and *Streptococcus pyogenes*. The highest zone of inhibition were observed in *P. aeruginosa* (31mm) and *E.coli* (31mm) followed by *S. pyogenes* (30mm), *K. pneumoniae* (30mm), *S. aureus* (25mm) and *S. typhimurium* (25mm). The ZnO nanoparticles provide good antibacterial activity against all the tested organisms when compared to the broad-spectrum antibiotic kanamycin.

KEYWORDS: *Citrus limetta,* ZnO nanoparticle, Agar well diffusion method, Gram Positive and Negative bacteria

INTRODUCTION

Nanotechnology is an area of science and engineering concerned with materials with dimensions of less than a hundredth of a nanometer [1]. Future technologies required scaling down to the nanoscale and starting at a lower level [2]. Nanoparticles are an attractive choice for biomedical applications in a number of biological processes that take place at the nanometer scale because of their unique properties [3]. Nanomaterials are rapidly being used in nanoscaled devices with several functions due to their considerable structure, optical, and electrical properties [4].

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In vitro Cytotoxic Activity between Methanolic Crude Extract and Column Eluted Fraction of the Medicinal Plant *Acacia Caesia* (L.) Willd.

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ABSTRACT: In the present study the cytotoxicity of methanolic crude extract and column purified fraction of *Acacia caesia* were carried out on lung cancer cell line and vero cell line (African green monkey) using MTT assay [3-(4, 5-dimethyl-2-thiazolyl)-2, 5-diphenyl-2H-tetrazolium bromide]. The results were expressed as cell viability (%) obtained from the sequence of concentrations viz. 30, 50, 100, 500 and 1000 µg/ml. The methanol and column purified fraction of *A. caesia* possess significant cytotoxic activity at different concentrations against lung cancer and vero cell lines. Methanolic extract and Column purified fraction exhibited a strong cytotoxic effect only on lung cancer cell lines value of 32.43 % and 37.21 % cell viability at 1000 µg/ml concentration. Based on the results it is determined that *A. caesia* is a significant source of biologically active substances that have cytotoxic and anticancer activity *in vitro*.

Keywords: *Acacia caesia*, MTT assay, cell viability, cytotoxicity.

1. INTRODUCTION

Cancer-related research is conducted worldwide every day, since cancer is a leading cause of death. These studies often involve the investigation of the effects of biologically active substances on cancer cells, and they frequently originate from plants [1]. There is a great need to examine reliable and inexhaustible sources of natural substances. In addition, it is important to understand the mechanisms of anticancer agents for future application in cancer therapy [2].

The shrubby species, *Acacia caesia* (L.) Willd. of Mimosaceae family generally distributed in low hills of Western Ghats (400-700m above msl) of Tamil Nadu is having many populations or variants with distinct morphological, genetic and phytochemical characters and accordingly the effectiveness of medicinal properties are varied. It is an important locally used folklore medicinal plant in Coimbatore district of Tamil Nadu for the

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Rhizospheric Soil Ecology of *Abelmoschus Ficulneus* (L.) Wight & Arn.

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ABSTRACT: Soil, as a medium for the growth of plants, supports an invisible but nevertheless vital population of microorganisms. The roots of living plants create a special habitat by virtue of their exudations and materials sloughed off during root growth. The plant is in turn affected by the diversity and population of micro flora that it has stimulate since plant root region is a site from which microorganisms obtain their nutrients and through which pathogenic ones penetrates. The rhizosphere is a micro-ecological region in direct contact with plant roots.The current study focused on the soil microbes of rhizospheric soil of *Abelmoschus ficulneus* where five bacterial, fungal species and also Actinomycetes were observed.

Keywords: Rhizosphere soil, *Abelmoschus ficulneus*, Bacteria, Fungi, Actinomycetes..

1. INTRODUCTION

Soil is acting as one of the medium for the growth of plants and supports an invisible but nevertheless vital population of microorganisms. The roots of living plants create a special habitat by virtue of their exudations and materials sloughed off during root growth [1]. The rhizosphere soil is the narrow region of soil containing plant roots. Therefore the rhizosphere soil is directly influenced by root secretions and associated soil microorganisms. The rhizosphere microorganisms are important for plant health and nutrition [2]. Rhizosphere can also be described as a mixture of solid particles and active community of microorganisms, mostly bacteria [3].

Soil is a dynamic system and is an ecological niche where constant biological activity infl uences the chemical nature of its parent material and the plant growth it supports [4]. The microbial population of the rhizosphere consists of pathogenic, symbiotic or saprophytic microbes which affect the growth and development of plants. A multiplicity of associative and antagonistic interactions amongst these microflora and fauna adds an extra dimension to the rhizosphere effect [5].

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Pharmacognostical characterization and phytochemical investigation of important medicinal herb *Azima tetracantha* Lam.

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ABSTRACT: The genuinity of the herbal materials was important for manufacturing the herbal products. Nowadays, adulteration has become very common for many reasons, like the non availability of raw materials, lack of knowledge, etc. Hence, it becomes necessary to analyse and characterise the herbs both pharmacognostically and phytochemically to prove the genuinity of the materials used. For the present study, *Azima tetracantha* which belongs to the Salvadoraceae, was taken and analysed both pharmacognistically and phytochemically. The macroscopic and microscopic studies revealed the characteristic features of the plant. The organoleptic study showed that the characterstic colour, odour, taste and nature of the powder and also various reactions with solvents, acids and bases. The study showed a very low foaming index, i.e., > 1 due to the low content of saponins. The herbs were tested phytochemically and showed terpenoids, phenols, steroids, flavonoids, glycosides, and tannins. The anatomical study exhibited the characteristic features of the study plant. Hence, the present study clearly explains the genunity of the medicinal plant *Azima tetracantha* will lead to the manufacture of a valid herbal product.

KEYWORDS: Pharmcognosy, Phytochemistry, Alkaloids, Terpenoids

1. INTRODUCTION

Medicinal plants are used by 80% of the world population for their basic health needs. India is the birth place of indigenous medicines such as Siddha, Ayurveda and Unani system. By knowing or unknowingly become part of the home remedial system. Hence the relationship with the plants was extended as a key on medicinal aspects. Traditional system of medicines was prepared from a single combination of more than one plant. The efficacy of the drug depends upon the on quality of plant species, parts and biological property of medicinal plants which in turn depends upon the occurring as primary and secondary metabolites [1]. Intern, it is necessary to have detailed knowledge on medicinal plants used for preparedly a drug in every aspect of the medicinal plants are rich source of various chemical compounds present. Medicinal plants are still major parts of traditional medicinal systems in developing countries many infection disease are known to be treated with herbal remedies throughout the history of mankind. Even today plant materials continue to play a major role in primary health care as therapeutic remedies in many developing countries. The branch of pharmacology that deals with drugs in the form of crude or natural state of medicinal herbs or other plants for their original features is called pharmacognosy. It is also the study

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Folklore Medicinal Knowledge of the Peoples in Pathinettamkottai Village, Sivagangai district, Tamilnadu, India

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ABSTRACT:

Since ancient period man looking for plants to rescue from diseases and to improve immunity. He may found right choice of plants by trial and error, observing nature and following theories and passed that information to next generation by word of mouth. Folklore medicine is a combination of traditional healing practices, spirituality and therapies to diagnose and prevent ailments. The present study in Pathinettamkottai village and its surrounding areas of Sivagangai district in Tamilnadu explored 65 medicinal remedies from plants used to treat 41 different illnesses. The predominant part used to prepare medicines is leaf. The medicines are prepared in the form of powder, paste, decoction and vapor. The survey provide rich source of plants to find new drugs.

Keywords: indigenous medicine, medicinal plants, forms of medicine

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EVALUATION OF CUMULATIVE ALLELOPATHIC POTENTIAL OF SOME COMMON WEEDS AGAINST IMPORTANT CROP SPECIES

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ABSTRACT: The leachates of common weeds such as *Parthenium hysterophorus, Euphorbia hirta, Phyllanthus medraspatensis, Cynodon dactylon, Cyperus rotundus* and *Tridax procumbens* were taken to evaluate the potential against some important crop species like Sorghum bicolor, *Eleusine coracana, Setaria italica*, and *Pennisetum glaucum*. The consortia made out of extracts of common weeds at different ratios exhibited various fluctuations in the growth and development of studied species. The germination percentage is reduced considerably at various hours of the soaking period of *Sorghum bicolor*. Similarly, the seedling length is also reduced. The species *Pennisetum glaucum, Setaria italica* and *Eleusine coracana* also showed variable percentages of seed germination and seedling length due to the effect of allelochemicals. The study showed that the formulated herbal extract mixture with different ratios affected the crop species growth and development.

KEYWORDS: Allelochemicals, Weeds, leachates, chlorosis, necrosis

1. INTRODUCTION

Indian is one of the agricultural based countries. The diverse climatic conditions and tropical climate supports the crops to grow easily. The green revolution was started to eradicate proverty and this brings out many developments in agriculture, cultivation practices and many technologies has been introduced to increase the crop yield. Weeds are more problematic and also compete for light, water and nutrients and harbor diseases and insects [4]. The use of herbicides induces numerous changes in plant growth like inhibition of growth, foliar chlorosis, albinism and necrosis [7]. Many herbicides persist in the environment and causes biomagnifications. So there is every need to develop herbicides which are biodegradable. Herbicides developed from the plants will be safer and they are biodegradable. Allelopathy holds potentials for selective biological weed management. The phenomenon of allelopathy refers to chemical interactions between all types of plants. In this process the chemical exudates or leachates released from leaves, stems or roots of a plant can inhibit the growth of a neighboring one [6].Under

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Profiling and isoenzyme analysis of black gram leaves by using different organic manures

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ABSTRACT:

Plant molecular studies provide better ideas for cultivating protein-rich crops that are in high demand commercially. Black gram (*Vigna mungo L. Hepper*) is a seasonal crop that contains a high amount of protein. Because of using better organic manure instead of chemical fertilizer, productivity was high and the soil fertility was also in good condition. Two different organic manures, such as coir pith and cow dung, were mixed separately with fertile soil and used as potting mixture. The plant which was grown in coir pith manure showed 66.5 mg/ml of protein and the plant grown in cow dung manure showed 65 mg/ml of protein. The total and specific activity of peroxidase isoenzyme for the plant grown in coir pith manure was 0.028 and 0.421, whereas 0.016 and 0.246 were the total and specific activities for cow dung manure. This shows usage of green manuring recycles plant nutrients and increases productivity.

KEYWORDS: *Vigna mungo*, organic manure, peroxidase isoenzyme, specific activity, green manure

1.INTRODUCTION

Plants need a well-balanced diet for better growth and yield. Manures are the substances which provide nutrients for proper growth of plants. Manure is anything that has been added to the soil to increase its fertility and enhance for plant growth (Boller and Hani, 2004). Organic manures are decaying material of plant or animal origin. Inorganic manures are chemical fertilizer and nutrients, such as nitrogen that is trapped by bacteria in the soil. Currently, the use of inorganic fertilizers to improve soil fertility is popular among farmers in some parts of the world, but the synthesized mineral fertilizer shows deleterious effects on soil micro- organisms and soil structure and it is also very expensive and this limits their utilization by small scale farmers. Use of organic amendments as a source of plant nutrients has often been associated with desirable soil properties including improved soil structure, water holding capacity, build up soil organic matter and proliferation of beneficial soil organisms (Bulluck *et al.*,

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