Anand Charitable Sanstha Ashti's

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(Arts, Commerce & Science)

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NAAC 'A' Grade (3.11- CGPA) | ISO 9001:2015 Certification | Prin. Dr. H.G. Vidhate

Ref. No.ADMK / 2020-2021 /222

Date: 11/02/2021

To,
The Deputy Registrar,
Planning and Statistical Section
Dr. B.A.M.University,
Aurangabad

Subject:- Submission of the Final Report of Minor research Project with Utilization Certificate and Expenditure Statement.....

Ref. No.: STAT/VI/RG/College/2019-20/397-99 Date: 24/06/2019

Respected Sir,

With reference to above cited subject, I have pleasure to mention that **Dr. P. P. Ghumare** is working in our college as Associate professor in Chemistry. Dr. B. A. M. University, Aurangabad sanctioned her a minor research project with grant amount **Rs. 50,000/-** (Rs. Fifty thousand only) entitled ***"Phytochemical Antimicrobial Activity of Some Medicinal Plants".***

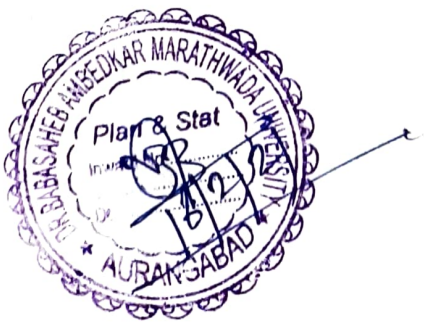
The Principal investigator has completed this project in time but because of COVID-19 we couldn't submit it in time. She has sanctioned grant amount Rs. 50,000/-(Rs.Fifty thousand only).But doesn't received any installment, please credit her amount and accept final report with utilization certificate and expenditure details.

Thanking you.

PRINCIPAL
Anandrao Dhonde Alias Babaji
College, Kada, Tal. Ashti, Dist.Beed

Encl. 1. Utilization Certificate and Statement of Expenditure.
2.Final report of Minor research project.

PRINCIPAL
Anandrao Dhonde Alias Babaji
College, Kada, Tal. Ashti, Dist. Beed



DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

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UNIVERSITY CAMPUS
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Ref: No. STAT/VI/RG/College/2019-20/ 397-99

Date:-21/06/2019
24

Dr. Ghumare Pramila Pandurang,
Assistant Professor,
Dept. of Chemistry,
Anandrao Dhonde Alias Babaji
Mahavidyalaya, Kada,
Ashti, Dist-Beed.

Subject: - Research Grant for the Project " Phytochemical Antimicrobial activity of some medicinal plants "

With reference to your proposal for Minor Research Project entitled Project **"Phytochemical Antimicrobial activity of some medicinal plants"** the University authorities have considered the said application and sanctioned you a grant of **Rs. 50000/-** (Rs. Fifty Thousand Only) subject to fulfillment of conditions laid down by the University for payment of Research Grant (Copy Enclosed) and on the condition that you have not already undertaken and completed the project under University's Minor Research Project Grant.

The said grant will be paid to you in two installments. The first installment (Approx. 50%) will be paid to you soon after the acceptance of all conditions attached to the Grants. The last installment will be paid after final report is submitted by you along with the statement of accounts supported by the vouchers and return of materials such as books, equipment's etc if any purchased out of the grant. The final reports and accounts shall be submitted on or before 31 Jan, 2021 through the Head of the Institution.

Principal Investigators to submit year wise measurable outcome of the proposal. This should be submitted before the release of final installment without which grant will not be released.

Principal Investigators should publish at least one research paper in index journal (Indian citation index for social science, humanity & commerce, management science faculty, Scopus citation index for science faculty) by the end of 1st year, and submit one copy of the report in Plan & Stat section, failure of which the project will be suspended & grant will not be released. The PI will be called for presentation of the research project in front of the respective experts of the subject by the end of 1st year.

I am therefore requesting you to go through the rules (Copy enclosed) and according to Rule (6) give further undertaking in the enclosed form. On receipt of the same the first installment of grant will be released.

Encl: - (As Above)

Deputy Registrar
Plan & Stat

Final Report of Minor Research Project

"Phytochemical Antimicrobial Activity of Some Medicinal Plants"

Planning and Statistical Section

Dr. Babasaheb Ambedkar Marathwada University Aurangabad

Submission of Final Report of Minor Research Project

In

Chemistry

Under the area of Organic and Medicinal Chemistry

Principal Investigator

Dr. Ghumare Pramila Pandurang

Anandrao Dhonde Alias Babaji Mahavidyalaya,Kada

Tal. Ashti. Dist. Beed.414202

Ref: No.-STAT/VI/RG/College/2019-20/397-99 **Date:- 24/06/2019**

January-2021

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It will start with my God who gave me the life, strength and the perseverance, who equipped me with the right tools to study science. It gives me great pleasure to express my sincere thanks and deep sense of indebtedness to my ***Principal Dr. H. G. Vidhate****, Anandrao Dhonde Alias Babaji Mahavidyalaya, Kada. Tal.- Ashti. Dist- Beed, for his motivation, co-operation and encouragement during my research work.*

My sincere thanks to ***Shri Bhimraoji Dhonde, President, Anand Charitable Sanstha, Ashti. Dist- Beed,*** *for their kind encouragement and inspiration during my research work.*

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I express thanks to my colleague, Dr. D. B. Jirekar, Mr. I. Nannaware, Dr. B. N. Gawade and Mr.Ajinath Suryawanshi for their co-operation in my research work.

I am also grateful to my friends Dr.D. S. Bodkhe, Dr. B. S. Khaire, Dr. G. M.Pathare, Dr. R. G. Vidhate,Dr. S. D. Gaikwad, , Dr. S. A. Khedkar, Dr. G. S. Jagtap, who made my life happy with their company and support during the period of my research work.

I will be failing in my duties, if I won't express my heartfelt thanks to my family members, Dr. Chandrashekhar Narsale (Husband), Vivek (son) for being a constant source of inspiration for me.

Dr. Ghumare Pramila Pandurang

CERTIFICATE

This is certify that Dr. Ghumare Pramila Pandurang has satisfactory completed her minor research project in entilted "Phytochemical Antimicrobial Activity of Some Medicinal Plants" as laid down in the regulation of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad during the academic year 2020-2021.

Place: Kada

Date: 11/02/2021

Principal

PRINCIPAL
Anandrao Dhonde Alias Babaji
College, Kada, Tal. Ashti, Dist.Beed

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❖ **Publications**

1. INTRODUCTION

1.1 Introduction

In ancient Indian philosophy, four religious books were practiced, these are called Vedas. There are four Vedas, Rigveda, Atherveda, Samaveda and Yujarveda. Ayurveda is considered as upaveda i.e.auxiliary knowledge (supplements) to the Rigveda or Atherveda. It was believed that ayurveda was received by Dhanvantari Divodasa from God Brahma.The text for ayurveda was rewritten by sage Agnivesh, who was the student of sage Bhardwaja. The Ayurveda is divided into three text books such as Charaka Samhita, Sushruta Samhitaand Bheda Samhita. The most important text among these is Charaka Samhita,which is considered as primary text.It is estimated that Charaka Samhita is written 100 BCE,Whereas Shushruta Samhita is written in 3rd or 4th century.The Bheda Samhita is believed to be written in the early 6thcentury. The medical portion of Bheda Samhita i.e Bower Manuscript is practiced during the Maurya period.In the latest part of aGupta period, two more text was in practice these are Kasyapa and the Harita Samhita.

There are three ancient systems used for the treatment of diseases. These are Ayurveda, the Chinese medical system and Greece medical system. Ayurveda includes Yoga,whereas in Chinesesystem acupuncture is incorporated. The ancient medical system contains formulations based on plants,animals and minerals. Mostly plant materials are commonly used. Greek physician Galen (129AD-200AD) devised the first pharmacopoeia describing the appearance, properties and use of many plants of his time [1]. There are some major problems, now a day with ayurvedic preparations. The lack of first hand information isone of them. The people rely on

the second hand accounts of value and use of botanical plants.It should be noted that a long period is required to prove the medicinal property of a formulations with proven

safety profile. The discovery of new drugs from natural product depends on the efforts of chemist, analyst, pharmacologist, microbiologist and biochemists. The development of new drugs on the basis of above fact is due to several reasons which include emergence of drug resistance micro-organism, side effects of modern drugs and new diseases,where no medicine are available.

1.1.1. Mahabhuta

Much like the medicine of classical antiquity, Ayurveda has historically taken the approach of enumerating bodily substances in the framework of the five classical elements mahapanchbhuta viz. earth, water, fire, air, and ether, considering the *seven "tissues" dhatu of plasma (rasa dhatu), blood (rakta dhatu), flesh (mamsa dhatu*), adipose (*medha dhatu), bone* (*asthi dhatu*), marrow (*majja dhatu*) and reproductive (*sukra dhatu*).

1.1.2. Dosha

Ayurveda stresses a balance of three elemental substances (dosa), analogous to classical humorism : *Vayu / vata* (air & space – "wind"), *pitta* (fire & water –"bile") and *kapha* (water & earth –"phlegm").One ayurvedic theory asserts that each human possesses a unique combination of dosas that define that person's temperament and characteristics. Each person has a natural systems state or natural combination of the three elements and should seek balance by structuring their behavior or environment to provide more of the element they lack.Another view also present in the ancient literature, asserts that humoral equality is identical to health and that persons with preponderances of humours are proportionately unhealthy and this is not their natural temperament.

1.1.3 Guna

In ayurveda there are 20 fundamental qualities (guna) inherent in all substances, arranged in ten pairs of antonyms: heavy/light, cold/hot, unctuous/dry, dull/sharp, stable/mobile, soft/hard, non-slimy/slimy, smooth/coarse, minute/gross, and viscous/liquid.

Ensuring the proper functions of channels (srotas) that transport fluids from one point to another is a vital goal of ayurvedic medicine, because the lack of healthy srotas is thought to cause rheumatism, epilepsy, autism, paralysis, convulsions and insanity. Practitioners induce sweating, which is termed as Svedana and prescribe steam-based treatments as a means to open up the channels and dilute the dosas that cause the blockages and lead to disease. Prakriti is an important concept in Ayurveda.

Ayurvedic practitioners approach diagnosis by using five senses.Hearing is used to observe the condition of breathing and speech.The study of the lethal points or *marman marma* is of special importance. Ayurvedic doctors regard physical and mental existence together with personality as a unit, each element having the capacity to influence the others. One of the fundamental aspects of ayurvedic medicine is to take this into account during diagnosis and therapy. Concepts of Dinacharya are followed in Ayurveda. Practices like oil pulling are practiced.

Ayurveda stresses the use of plant-based medicines and treatments.Hundreds of plant-based medicines are employed, including cardamom cinnamon. Some animal products may also be used, for example milk, bones and gallstone. In addition fats are used both for consumption and for external use. Minerals including sulphur, arsenic, lead, copper sulphate and gold are also

consumed as prescribed.This practice of adding minerals to herbal medicine is known as rasa shastra.

1.1.4. Panchakarm

The practice of panchakarma is a therapeutic way of eliminating toxic elements from the body.Panchakarma includes Vamana, Virechana, Basti, Nasya and Raktamokshana.

1.1.5. Diagnosis

Diagnosis has 8 ways of diagnosis. They are Nadi (Pulse), Mootra (Urine), Mala (Stool), Jinvha (Tongue), Shabda (Speech), Sparsha (Touch), Druk (Vision), kruti (Appearance).

1.2. SIDDHA SYSTEM

Siddha Medicineis one of the oldest medical systems known to mankind.Contemporary Tamizh literature holds that the system of Siddha medicine is originated in Southern India, in the state of Tamil Nadu. The Siddha system of medicine is considered one of the most ancient traditional medical systems.

"Siddhargal" or Siddhars were the premier scientists of ancient daySiddhars, mainly from Southern India laid the foundation for this system of medication. Siddhars were spiritual adepts who possessed the ashta siddhis or the eight supernatural powers. Sage Agathiyaris considered the guru of all Sidhars, and the Siddha system is believed to have been handed over to him by Lord Muruga, son of the Hindu God – Lord Shiva and Goddess Parvathi. So, the Siddhars are followers of Lord Shiva. "Agathiyar" was the first Siddha.

1.3. UNANI SYSTEM

Unani medicine is a form of traditional medicinewidely practiced by Muslims. It refers to a tradition of Graeco-Arabic medicine [2], which is based on the teachings of Greek physician Hippocrates and Roman physician Galen developed into an elaborate medical System by Arab and Persian physians, such as Rhazes, Avicenna, Al-Zahrawi and Nafis.

. Unani medicine is based on the concept of the four humours: Phlegm (Balgham), Blood (Dam), Yellow bile (Safra) and Black bil hough the threads which comprise Unani healing can be traced all the way back to Ancient Iranian Medicine, the basic knowledge of Unani medicine as a healing system was developed by Muslim scholar Hakim Ibn Sina (known as Avicenna in the west) in his medical encyclopedia Canon of Medicine. The time of origin is thus dated at circa 1025 AD, when Avicenna wrote. The Canon of Medicine in Persia. While he was primarily influenced by Greek and Islamic medicine, he was also influenced by the Indian medical teaching of Sushruta and Charaka.

Unani medicine first arrived in India around 12th or 13th century with establishment of Delhi Sultanate (1206AD-1527AD) and Islamic rule over north India and subsequently flourished under Mughal Empire. Alauddin Khilji (1296AD-1316AD) had several eminent Unani physicians (Hakims) in his royal court. In the coming year this royal patronage meant development of Unani practice in India, but also of Unani literature with the aid ofIndian Ayurvedic physians [3].

1.4. HOMEOPATHY

Homeopathy comes from the Greek word homios- "like" pathos -"suffering" is a system of alternative medicineoriginated in 1796 by Samuel Hahnemann, based on his doctrine of similia similibus curentur (“like cures like"), according to which a substance that causes the

symptoms of a disease in healthy people will cure similar symptoms in sick people. It is widely considered a Peudoscience [4].

Hahnemann believed that the underlying causes of disease were phenomena that he termed miasmsand that homeopathic remedies addressed these. The remedies are prepared by repeatedly diluting a chosen substance in alcohol or distilled water, followed by forceful striking on an elastic body calledsuccession. Each dilution followed by succession is said to increase the remedy's potency. Dilution usually continues well past the point where none of the original substance remains [5]. Homeopaths select remedies by consulting reference books known as repertories, considering the totality of the patient's symptoms as well as the patient's personal traits, physical and psychological state and life history.

1.5. ALLOPATHY

Allopathy is the modern method of treatment of diseases.Although, the base of allopathy lies in the ancient medicine system.Many diseases are treated with modern medicine i.e. allopathy,but it has side effects such as toxicity of pharmaceuticals and resistance.The discovery of drugin allopathy is though lengthy,but is effective.Before coming to the commercial market, a drug undergoes various trials and tests on animals and healthy human volunteers.These are called clinical trials,during which all the side effects are recorded. The quality of pharmaceutical drug is monitored by Drug Authority of Central Govt. Different pharmacopecal methods are developed to estimate the drug present in different dosage forms.

1.6. REVIEW OF LITERATURE

In India and throughout world, large numbers of researchers are working on exploring the world of plant kingdom for the benefit of humans. Several papers appeared in the last few

decades which describe the phytochemical and medicinal use of plant.In the following paragraphs few of them are discussed**.**

The Chavre B. W. et.al [6] gathered important information of 16 plants belonging to 13 different families. An ethnobotanical survey wascarried out in the Beeddistrict and information is collected about antidiabetic plants.All the species includes are widely grown.This traditional knowledge is very valuablesource for the research and discovery of new pharmaceutical drug.The plants *Annona reticulate, Cassia auriculata, Cassia accidentalis,Catharanthus roseus, Cocos nucifera,Diospyr ous melanoxylon, Enicostema axillare, Gymnema sylvestre,Momordica charantia, Murraya koenigii, Phyilanthus embica,Pithecellobium dulce,Syzygium cumini,Tragia plukenetii, Woodifordia fruticosa* plants of various families used by local people to cure diabetes. Different plants parts such as root,leaves, bark, fruit, flower, seeds etc. are administered with other products such as milk, water etc. while making treatment on diabetes.

The indigenous knowledge of local traditional healers about the native plants used for medicinal purposes was collected through a questionnaire by Singh E.A.et.al. [7]interview during field visits. A forest walk with the healers enabled plant collectionand documentation relation to the remedial information of plants used against snake bite and scorpion bite. They show plant species belonging to different families used by the tribal people against snake bite and scorpion biteare documented.They show that the thaker tribes of Raigad district still continue to depend on medicinal plants for treatment of these bites. Different parts of plants such as *Aegle marmelos,Cassytha filiformis,Commicarpus chinensis, Costus speciosus, Cuscuta reflexa, Cyphostemma auriculatur,Radermachera xylocarpa, Tinospora cardiofolia and Bombax ceiba* are used for snake bite. In case of scorpion bitedifferent parts of plants such as *Abrus*

precatorius, Achyranthes aspera, Brassica junsea, Carissa congesta,Cyperus rotundus, Gloriosa superb, Luffa acutangula Madhuca latifolia, Martynia annu.

The communities like Mahadeo Koli,Thakar, Ramoshi,Bhils generally used medicinal plants for four important ailment like jaundice,asthama, mouth ulcer and teeth disorder.They have strong belief in traditional system of medicine prescribed by local healers [8].

Maharashtra state flora abounds in medicinal plants which can be called as storehouse as it covers varied geographical areas, phytogeographic region. The medicinal plants used for various diseases from common cold to dreaded diseases like a variety of cancers.Some of the medicinal plants are believed to cure practically every human diseasefrom head to toe. Natural drugs better safe than synthetic therefore people are returning to the field of traditional plants. Different parts of plants of different families such as *Veronia cinerea, Eclipta prostrata,Spilanthes paniculata, Tridax procumbens, Plumbago zeylanica, Enicostema axillare,Catharanthus roseus, Nerium indium, Calotropis procera, Gymnema pergularia Hemidesmus indicus, Merrernia disseeta, Withania somnifera, Solanum virginionum* are for malerial fever, alternative in leprosy, chronic skin diseases, jaundice,panda, scabies, brain tonic, hepatoprotective,toothache, headache,dysentery, cuts, wounds, blood pressure, diarrhea, skin diseases, diabetes, cancers, scorpion sting, snake bite, asthma, rheumatic swelling, inhealing of wounds, chest pain,dysuria and stone in bladder, gonorrhea[9].

The Nandurbar region is inhibited by tribal communities like Bhils,Valvi,Gavil, padvi,Mawchi,Konkani, Dhank, Tadvi etc. They use the plants for different ailments.Different parts of different plants such as *Bombax ceiba, Contella asiatica, Celosia argentia,Cassia auriculata, Cassia fistula, Holarrhena pubescens, Sterculia urens, Echinops echinatus,Fagonia cretica,Ficus religiosa, Ensete superb, Rubia cordifolia, Tribulus terrestris,Thespesia*

populnea,Wrightia tinctoria, Ziziphus rugosa are used for Leucorrhea, jaundice,kidney stone, to raise sperm count in men, dental caries, to get relief from itching, mouth ulcers, cough and throat disorder[10].

Historically plants have played an important role in medicine. The observation and experimentation by Mohd Mazid, et. al.[11] human beings have learnt that plant promote health and well -being. The use of these herbal remedies is not cost effective but also safe and almost free from serious side effects.The village elders and tribals have tremendous knowledge about for health reason started thousands of years ago and is still part of medicinal practices by folk of various regions of Indian sub-continents as well as several other countries including china Middle East.The plants *Zinger officinale,Corinadum sativum,Butea monosperma, Alangium salvifolium Mentha arvensis, Carica papaya, Azardirachita indica,Aloe barbedensis,Allium sativum* is used to cure different diseases as diarrhea, dysentery, stomach pain, vomiting, constipation, scabies, bacterial skin infections, ring worms, sore wounds, Eczema, dry skin abscess.

Plants are used for prevention and cure of various diseases of human beings. Here list of some plants that have wound healing properties and are as well as used traditionally in Washim district.These are known for curative properties for various ailments apart from their use as wound healers.The different parts of plants such *as Acacia catechu,Acalypha indica, Achyranthes aspera,Aloe vera, Annona squamosa, Argemone maxicana, Azardirachita indica, Butea monosperma Bombax ceiba Brassica juncea,Bryophyllum calycinum, Caesalpinia procera,Carica papaya, Colocasia esculenta, Commiphora mokul,Costus specious, Curcuma longa, Daucas carota, Erythrina varaegata, Euphorbia hirta, Ficus religiosa, Gloroissa superb, Jatropa gossypifolia, Lantana camara,Lawsonia innnermis, Mimosa pudica,Nerium indicum,*

Ocimumsanctum, Phyllanthusembica, Punicagranatum, Ricinuscommunis, Semecarpus anacardium, Tridax procrumbens,Trigonella foenumgraecum, Withania somnifera, Zingiber officinal are used as wound healers[12].

An ethnobotanicalsurvey was carried out byJain D. L. et.al. [13] on the use of medicinal plants in Satpuda region of Dhule and Jalgaon districtsof Maharashtra. The information was collected from Pawara, Bhils, and Pardhi tribes. Some medicinal plant speciesof different families are used to cure their diseasesand disorder in Satpuda forest region still depend on these plants. The plants as *Acacia Arabica, Acacia chundra,, Achranthes aspera,Adhatoda vesica,Aegle marmelos,Ageratum conyzoides, Allium sativum, Amaranthus virdis,Anogeissus latifolia*and other some plants are used to cure ailements as,dysentery ulcer, snake-bite, asthma, cough, diarrohea, diabetes, stomach disorder, brain tonic, skin trouble, heart trouble and digestive agent.

The flowers and young leaves of *Sesbania cannabina* are edible and are often used as a vegetable to supplement meals. Tender pods may also be eaten as string beans. The dried leaves of *Sesbania cannabina* are used in some countries as a tea which is considered to have antibiotic, anti-helminthic, anti-tumour and contraceptive properties. Bark exudates and seed endosperm gums are produced by many species of *Sesbania*, but are not seen as an alternative to gum Arabic [14]can also be used as shade trees for coffee, tea and cocoa as well as living trellises for pepper and as windbreaks for citrus, bananas and coffee. The crude protein content of the leaves is high (25–30% of dry matter) and they contain little tannin and other polyphenolics.*Sesbania* is thus a useful source of protein for ruminant diets.Neutral-detergent fiber(NDF), in vitro true digestibility, lignin, insoluble proanthocyanidins, and soluble phenolics.

Sesbania cannabina resorted to be aperient, diuretic, emetic, emmenagogue, febrifuge, laxative, tonic, agati is a folk remedy for bruises, catarrh, dysentery, eyes, fevers, headaches, smallpox, sores, sore throat and stomatii. Bark, leaves, gums and flowers are considered medicinal. The astringent bark was used in treating smallpox and other eruptive fevers. The juice from the flowers is used to treat headache, head congestion or stuffy nose. As a snuff, the juice is supposed to clear the nasal sinuses. Leaves are poulticed onto bruises. Rheumatic swellings are poulticed or rubbed with aqueous decoctions of the powdered roots of the red-flowered variant. In India the flowers are sacred to Siva, representing both the male and female sex organs; their use as aphrodisiacs, believing the fruits to be alexiteric, laxative and intellectually stimulating, prescribe them for anemia, bronchitis, fever, pain, thirst and tumors; the flowers, aperitif and refrigerant, for biliousness, bronchitis, gout, nyctalopia, ozoena and quart an fever; the root for inflammation, the bark as astringent; leaves, alexiteric, anthelmintic, for epilepsy, gout, itch, leprosy, nyctalopia and ophthalmic. Yunani consider the tonic leaves useful in biliousness, fever and nyctalopia.

Indians apply the roots in rheumatism, the juice of the leaves and flowers for headache and nasal catarrh. Mixed with stramonium and pasted, the root is poultice onto painful swellings. Flower juice is squeezed into the eye to correct dim vision. The bark is used in infusions for smallpox. Cambodians consider the flowers emollient and laxative, the bark for diarrhea, dysentery and paludism. Malayans apply crushed leaves to sprains and contusions. The gargle of the leaf juice cleans the mouth and throat. In small doses, the bark is used for dysentery and sprue, in large doses, laxative, in still larger doses, emetic. Pounded bark is applied to scabies. Philippines use the pounded bark for hemoptysis. The powdered bark is also recommended for

ulcers of the mouth and alimentary canal. In Java, the bark is used for thrush and infantile disorders of the stomach. Leaves are chewed to disinfect the mouth and throat.

The proximate composition *Sesbania bispinosa* are found tocontain high content of crude protein. The seed samples contain relatively high content of crude lipid.Various processing methods such as soaking followed by cooking and enzymatic treatment to reduce / eliminate the levels of oligosaccharides. The presently studied tribal pulses exhibit high level of nutrients, besides *in vitro* protein digestibility and low level of antinutritional factors. After conducting toxicological animal feeding experiments, these little known tribal pulses may be recommended for large scale consumption Asian alternative potential source of protein.

Legume seeds are valuable source of protein, oil, carbohydrates, minerals and vitamins. They are playing an important role in human nutrition mainly in developing countries [15]. *Sesbania bispinosa* shows high content of crude protein (31.08 %) *Sesbania bispinosa* the essential amino acids such as cysteine, methionine and threonine were found to be deficient when compared with FAO / WHO (1991) requirement pattern. Linoleic and linolenic acids are the most important essential fatty acids required for growth, physiological functions and maintainance. Dhaincha (*Sesbania bispinosa*) contain galactomannan gum. This gum is water soluble, produces a smooth, light-colored, coherent, and elastic film useful for sizing textiles and paper, as well as for stabilizing the mud used in oil drilling [16]. Galactomannan gum is also used as a stabilizer and thickener in food products such as ice cream, bakery mixes, and salad dressings. Guar is grown for gum production in India and the southwestern United States. The plant is hardy and very drought resistant and grows well on alluvial and sandy loams [17]. Dhaincha can be grown in a rotation scheme for soil improvement, to provide fiber for paper

pulp, for fodder and has ornamental value. Dhaincha appears to produce well on a large scale with little care or investment and survives well on saline or wet soils.

Sesbania grandiflora (L.) Pers. is a soft wooded tree belonging to the family *Paplionaceae.* Flowers are rich in nutrients and are used as vegetables in rural area. Bark is used in treating small pox and other eruptive fevers. The juice from the flower is used to treat headache, head congestion or stuffy nose. The powdered bark is also recommended for ulcers of the mouth and alimentary canal and infantile disorders of the stomach [18]. Leaves are considered to be excellent sources of vitamin C and calcium, the later is utilized to the same extent as the calcium in milk, the utilization factors being 0.74% iodine content of the leaves is reported to be 2.3 g/100g. Pectin present in the leaves (1.5%) is of medium jelly quality. The saponins present in the leaves on hydrolysis gave an acid. Besides saponins, the leaves contain an aliphatic alcohol [19].The leaves are used as aperients, diuretic and tonic in form of poultice and they are applied to bruises. The barks of the plant are used as astringent, febrifuge and tonic and its infusion in small-pox. Besides the root juice along with honey is used as expectorant (Dhiman and nutritionally important flowers were used for the antioxidant activities).

Sesbania grandiflora (*Fabaceae*), popularly known as "Basna", is an ornamental plant and is found in the plains of western Himalayas to Sri Lanka [20]. The bark is reported to cure diarrhoea, dysentery, paludism, snake bite, malaria, smallpox, eruptic fever, scabies, ulcer and stomach disorders in children; in high dosis it causes vomiting and mild diarrhoea. Due to the large use of *S. grandiflora* in folk medicine in India, the objective of the present study was to investigate the antiulcer activity of its bark ethanolic extracts when administered by the oral route in rats.

The ethanol extracts of flowers, young bud, mature leaves and stems of *Calotropis procera (Asclepiadaceae*) of different parts of the plant extracts had large quantity of carbohydrate and tannin in flower while young buds had higher amount of phenoliccompounds andoil. Mature leaves showed maximum activity against all the bacterial strain used in the study. The extractsof mature leaves showed highest activity of 100% mortality at 2000 ppm after 48 hours of incubation against larvae of *A. stephansi*[21].

References:

1. Bhushan Patwardhan, Ayurveda, The designer Medicine, *Indian drugs*,37 (5), 2000: 1-20.
2. Hakim Syed ZillurRahman,Unani Medicine in India: Its Origin and Fundamental Concepts,History of Science, Philosophy and Culture in Indian Civilization, Vol. IV Part 2 (Medicine and Life Sciences in India), Ed. B. V. Subbarayappa, Centre for Studies in Civilizations Project of History of Indian Science,Philosophy and Culture, New Delhi, 2001: 298-325.
3. Hahnemann Samuel,*The Homeopathic Medical Doctrine or "Organon of the Healing Art"*. Dublin: W.F. Wakeman., 1833:48-49.
4. Kevin Smith.Homeopathy is unscientific and unethical. *Bioethics*, 26, (9), 2012: 508–512, DOI: 10.1111/j.1467-8519.2011.01956.x
5. Hahnemann S (1921), *The Organon of the Healing Art* (6th ed.), aphorism 128, *Public*. 2004. *"Examples of pseudosciences are astrology, homeopathy ..."*
6. B.W.Chavre,D.S. Jadhav and S.K.Markandeya,Traditionally used forest plants for the treatmentof diabetes in Beed district of Maharashtra,*Int. J. Ethno. Soc.Sci.*,2 (3&4), 2010:15-17.

7. Singh E.A.,Kamble, S.Y.,Bipinpal ,N.K.,Jagtap S.D.,Medicinal plants used by Thakar tribes of Raigad district,Maharashtra for the treatment of snake-bite and scorpion-bite,*Int. J. Phytoth Res*. ,2(2) ,2012 : 26-35.
8. Khyade M.S. Awasarkar U.D., Deshmukh R.R.,PetkarA.S.,Ethnobotanical reports about few important diseases from Akole Tehashil of Ahmednagar district(MS) India,*Asian J. Exp. Biol.Sci*.(2) 2010:393-403.
9. Ladda R G,Aradwad R P and Ambhore J S, Studies on herbal medicinal plants in Marathwada region(MS) India,*Biosci. Dis*.,4 (2) 2013:211-213.
10. Patil H. M, Ethnobotanical notes on Satpura hills of Nandurbar district, Maharashtra, India ,*Research J. Recent sci.*,1, 2012:326-328.
11. Mohd.Mazid, Taqi Ahmed Khan, Firoz Mohammad, Medicinal plants of rural India: A review of use by Indian folks, *Indo Global J. Pharma. Sci*., 2(3) 2012:286-304.
12. G.D. Wadankar,S. N. Malode and S.L. Sarambekar,Traditionally used medicinal plants for wound healing in the Washim district,Maharashtra (India),*Int. J. pharm Tech. Res*.,4 ,2011: 2080-2084.
13. DL Jain,AM Baheti, SR Jain and KR Khandelwal,Use of medicinal plants amongs tribes in Satpuda region of Dhule and Jalgaon districts of Maharashtra- An ethnobotanical survey,*Indian J. Trad. Know.*, 9(1), 2010: 152- 157.
14. Anderson, D.M.W. (1989) *Sesbania* species as sources of gum exudates and seed galactomanan gums. In: Macklin, B. and Evans, D.O. (eds), *Perennial Sesbania Species in Agroforestry SyWoods.* Proceedings of an international workshop at ICRAF Nairobi, Kenya. *NFTA Special Publication* 90-01, 99-194.

15. Mohamed, AI and Rangappa, M., Screening soybean (grain and vegetable) genotypes for nutrients and antinutritional factors.*Plant Foods for Human Nutrition.* 42, 1992: 87 – 96.
16. Vietmeyer, N.D., Lesser-known plants of potential use in agriculture and forestry Science,*Nat. Lib. Med. Nat. Instit. Of Health*, 32, 1986 : 1379– 1384.
17. Dhiman A.K., Sacreplants and their medicinal uses. *Daya publishing house Delhi*, 2003 : 172.
18. Devdatta, Appanna. Nutritive value of Indian foods.*Indian Acad. Sci*. 1954 :398, 297.
19. Chopra, R. N., Nayer, S. L., Chopra, and I. C. *Glossary of Indian Medicinal Plant. CSIR. New Delhi: Editora,*1956 : 226.
20. Wunwisa Krasaekoopt and Areeya Kongkarnchanatip , Anti-microbial Properties of Thai traditional flower vegetable extracts , *Assump. Univ. J.Tech.*9(2) , 2005 : 71-74.
21. Hiren Doshi, Hitesh Satodiy, Mukund Chandra Thakur, Farzin Parabia and Arif Khan, Phytochemical Screening and Biological Activity of *Calotropis Procera* (Ait). R. Br. (Asclepiadaceae) AgainstSelected Bacteria and Anopheles stephansi Larvae, *Int. J .Plant Res.* , 1(1), 2011 : 29-33.

2.MATERIAL AND METHOD :

The fresh leaves of *Feronia limonia, Dalbergia sissoo, Terminalia arjuna, Bauhinia racemosa* are collected from Sautada, District Beed. The fresh leaves were dried under shade, powdered and pass through 40 mesh sieve and stored in closed bottle for further use. The powder was extracted with different solvent such as water, ethanol, chloroform, acetone, petroleum ether by Soxhlet apparatus.

2.1. Ash analysis:

Ash value is helpful in determining the quality and purity of crude drug, is especially in powder form [1].

2.1.1. Total ash:

About 3 gm of powdered leaves was accurately weighed and taken in a silica crucible, which was ignited and weighed. The powder was spread as a fine, even layer on the bottom of crucible. The crucible was incinerated gradually by increasing temperature to make it dull red hot until free from carbon. The crucible was cooled and weighed. The procedure was repeated to get constant weight [2].

2.1.2. Water soluble ash:

The ash obtained as described in the determination of total ash was boiled for 5 minutes with 25 ml of water. The insoluble matter was collected on ashless filter paper and washed with hot water. The insoluble ash was transferred in to silica crucible, ignited for 15 minutes and weighed. The procedure was repeated to get constant weight. The weight of insoluble matter was subtracted from the weight of the total ash. The difference of weight was considered as water soluble ash [3].

2.1.3. The Acid insoluble ash:

The above obtained ash was boiled with 25 ml of 2N HCl for 5 minutes. The insoluble ash was collected on an ashless filter paper and was washed with hot water. The insoluble ash was transferred into a silica crucible, ignited and weighed. The procedure was repeated to get constant weight [3].

2.2. EXTRACTIVE VALUE:

Extractive value of crude drug are useful for their evaluation, especially when the constituents of a drug cannot be readily estimated by any others means. Further, these values indicate the nature of constituents present in crude drug [4].

2.3. PHYTOCHEMICAL ANALYSIS:

Phytochemical examinations were carried out for all the extract as per the standard methods [5].

2.3.1. Detection of carbohydrates: Extracts were dissolved individually in 5 ml distilled water and filtered. The filtrates were used to test for the presence of carbohydrates.

a) ***Molisch's test****:* Filtrate were treated with 2 drops of alcoholic α-napthol solution in a test tube. Formation of violet ring at the junction indicates the presence of carbohydrates.

b) Benedict's test: Filtrates were treated with Benedict's reagent and heated gently. Orange red precipitate indicates the presence of reducing sugars.

c) Fehling's test**:** Filtrates were hydrolyzed with dil. HCl, neutralized with alkali and heated with Fehling's A & B solutions. Formation of red precipitate indicates the presence of reducing sugars.

2.3.2. Detection of alkaloids: Extracts were dissolved individually in dilute hydrochloric acid then filtered and alkaloid were detected using following test.

a) Mayer's Test: Filtrates were treated with Mayer's reagent (Potassium Mercuric lodide). Formation of a yellow coloured precipitate indicates the presence of alkaloids.

b) Wagner's Test: Filtrate was treated with Wagner's reagent (Iodine in potassium Iodide). Formation of brown/reddish precipitate indicates the presence of alkaloids.

c) Dragendroff's Test : Filtrate were treated with Dragendroff's reagent (solution of potassium Bismuth iodide). Formation of red precipitate indicates the presence of alkaloids.

***d) Hager's Tes*t :** Filtrate were treated with Hager's reagent (saturated picric acid solution). Presence of alkaloids confirmed by the formation of yellow coloured precipitate.

2.3.3. Detection of glycosides: Extract was hydrolyzed with dil. HCl, and then subjected to test for glycosides.

a) Modified Borntrager's Test : Extracts were treated with ferric chloride solution and immersed in boiling water for about 5 minutes. The mixture was cooled and extracted with equal volumes of benzene. The benzene layer was separated and treated with ammonia solution. Formation of rose- pink colour in the ammonical layer indicates the presence of anthrnol glycosides.

b) Legal's Test : Extracts were treated with sodium nitropruside in pyridine and sodium hydroxide. Formation of pink to blood red colour indicates the presence of cardiac glycosides.

2.3.4. Detection of saponins:

a) Froth Test : Extracts were diluted with distilled water to 20 ml and this was shaken in a graduated cylinder for 15 minutes. Formation of 1cm layer of foam indicates the presence of saponins.

b) Foam Test : 0.5 gm of extract was shaken with 2 ml of water. If foam produced persists for ten minutes it indicates the presence of saponins.

2.3.5. Detection of phytosterols:

a) Salkowski's Test : Extracts were treated with chloroform and filtered. The filtrates were treated with few drops of Conc. Sulphuric acid, shaken and allowed to stand. Appearance of golden yellow indicates the presence of phytosterol.

b) Libermann Burchard's Test : Extracts were treated with chloroform and filtered. The filtrates were treated with few drops of acetic anhydride boiled and cooled, Conc. Sulphuric acid was added. Formation of brown ring at the junction indicates the presence of phytosterols.

2.3.6. Detection of Phenols:

a) Ferric chloride Test: Extracts were treated with 3-4 drops of ferric chloride solution. Formation of bluish colour indicates the presence of phenols.

2.3.7. Detection of tannins:

***a) Gelatin Test*:** To the extract, 1% gelatin solution containing sodium chloride was added. Formation of white precipitate indicates the presence of tannins.

2.3.8. Detection of Flavonoids:

a) Alkaline Reagent Test : Extracts were treated with few drops of sodium hydroxide solution. Formation of intense yellow colour, which becomes colourless on addition of dilute acid, indicates the presence of flavonoids.

b) Lead acetate Test: Extracts were treated with few drops of lead acetate solution. Formation of yellow colour precipitate indicates the presence of flavonoids.

2.3.9. Detection of protein and amino acids:

a) Xanthoproteic Test : The extracts were treated with few drops of Conc. Nitric acid. Formation of yellow colour indicates the presence of protein.

b) Ninhydrin Test : To the extract, 0.25 % Ninhydrin reagent was added and boiled for few minutes. Formation of blue colour indicates the presence of amino acid.

2.4. SCREENING OF ANTIMICROBIAL ACTIVITY:

Bacterial and fungal strains: The test organisms were purchased from NCIM, NCL Pune. The organisms were sub-cultured in the media specified. The organisms, their ATCC code, media in which they are sub-cultured are given in Table No. 2.1. Bacteria were incubated at 37 ^{0}C in incubator for 24 h. They were further stored at 4 ^{0}C in the refrigerator to maintain stock culture. Microorganisms with their ATCC Codes and media used for subculture are as follows [6].

Table -2.1. ATCC code and media used for development of micro-organism.

Sr. No.	Name of microorganism	Media
1	*Salmonella typhimurium*	Nutrient Agar
2	*Bacillus megeterium*	Nutrient Agar
3	*Pseudomonas aeruginosa*	Nutrient Agar
4	*Staphylococcus aureus*	Nutrient Agar
5	*Proteus vulgaris*	Nutrient Agar
6	*Aspergillusniger*	Nutrient Agar

2.4.1. Preparation of media:

Nutrient Agar: Accurately weighed 28 gm of nutrient agar was dissolved in the 1000 ml of distilled water by heating with frequent agitation. The media was finally sterilized in autoclave at 121 ^{0}C for 15 min.

2.4.2. Preparation of test and standard drug solutions:

Preparation of test extract: Test extract was prepared freshly by dissolving 1g of previously dried extract in the 10 ml of respective solvent. This gives the 100 mg 1ml of stock solution. From which 0.1, 0.2 and 0.4 ml was diluted to 1 ml each and 0.1ml was used for testing the activity.

2.4.3. Preparation of normal saline solution:

Accurately weighed 0.9 gm sodium chloride was dissolved in 100 ml of distilled water. Normal saline was sterilized before preparation of microbial suspension at 121 ^{0}C for 15 min. in autoclave.

2.4.4. Preparation of standard drug solutions:

Doxycyclin: Accurately weighed 100 mg Doxycyclin, dissolved in 100 ml of 0.1M hydrochloric acid to get 1000µg/ml stock solution. This was then diluted further with distilled water to get solution of 10µg/ml and 0.1ml was used in well.

Ciprofloxacin: Accurately weighed 100 mg Ciprofloxacin, dissolved in 100 ml 0.1M hydrochloric acid to get 1000µg/ml stock solution. This was then diluted further with distilled water to get solution of10µg/ml and 0.1 ml was used in well.

Fluconazole: Accurately weighed 100 mg. Fluconazole, dissolved in 100 ml of DMF (5% innormal saline) to give 1 mg/ml stock solution. This solution was further diluted with buffer (which was prepared by dissolving 2 gm. of dipotassium hydrogen phosphate and 8 gm of

potassium dihydrogen phosphate in distilled water to produce 100 ml) to get solution of 10µg/ml. Working solution 0.1 ml of each was used the well as positive control which will have test concentration of 1µg each of Doxycyclin, Ciprofloxacin and Fluconazole in the well.

2.4.5. Sterilization of equipments and media:

Dry heat sterilization: All the glasswares previously washed were sterilized in hot air oven. Petridishes, pipettes, test tubes were wrapped separately in the paper and kept in the hot air oven for sterilization at 180 ^{0}C for an hour.

Moist heat sterilization: Normal saline solution and nutrient medias were sterilized in autoclave at 121 ^{0}C for 15 min.

Preparation of microbial suspension: Microbial suspensions were prepared by transferring one loop full of stock culture to the 10 ml of normal saline solution. All the procedure was conducted in the laminar air flow in aseptic area.

2.4.6. Cylinder-plate or cup-plate method:

All the sterilized materials were kept in the aseptic area in the Ultra-Violet laminar air flow. Bacterial suspensions (3ml) were then poured in the petriplates. As soon as nutrient agar attained 50 ^{0}C temperature, 20 ml media was poured in to the petriplates containing bacterial suspension and plates were rotated to mix the suspension with media. When the agar got solidified bores were made in the plate with sterile borer of 8 mm diameter. In each plate six bores were made. Out of which one is meant for addition of standard, two for negative control of blank solvents of standard and sample and remaining three bores for addition of same concentrations of sample. 0.1 ml of sample was added in each cylinder. The plates were kept to allow diffusion at room temperature for three hours and then incubated in the upright position in incubator at 37 ^{0}C for about 21 h for bacterial growth. The diameter of zone of inhibition was

accurately measured for bacterial growth in each treated plate. The zone of inhibition of bacterial growth by the test solution was compared with the zone of inhibition by the standard at tested concentrations.

References :

1. Kokate, C. K., Purohit, A. P., Gokhale, S. B., : Pharnacognosy, 7th Edn., *Nirali prakashan,* 1997 : 105-144.
2. Indian Pharmacopoeia, 3rd Edn., vol. 2,Controller of publication, *Govt. of India, New Delhi,*1985 : A88-A90.
3. Indian pharmacopoeia, vol. II 4thEdn., Controller of publication, *Govt. of India, New Delhi,* 1996 : A-47.
4. Khandelwal, K. R. "Practical pharnacognosy", *Nirali prakashan, Pune;9th edition*; 2002: 157-158.
5. Prashant, Tiwari, Bimesh Kumar, Mandeep Kaur, Gurpreet Kaur and Harleen Kaur Phytochemical screening and extraction: A review, *Int. Pharma. Sci.*, 1(1), 2011 : 98-106.
6. Shete SA, Shah GN, Walke SS, Patil VS, Patil KD and Killedar SG, Standardization and antibacterial activity of *Couroupita guianensis* fruit shell extract, *Int. J. Bioassays*, 2 (1), 2013: 360-364.

3.Experimental Result:

3.1.*FERONIA LIMONIA:*

Table 3.1.1: Ash analysis of *Feronia limonia* leaves.

Sr. No.	Type of ash	Percentage(w/w)
1	Total ash	7.30%
2	Acid insoluble ash	2.10%
3	Water soluble ash	4.05%

Table3.1.2: Percentage extractive value of*Feronia limonia* leaves

Sr. No.	Type of extractive value	Percentage(w/w)
1	Water	7.75%
2	Ethanol	5.10%
3	Chloroform	1.05%
4	Acetone	4.80%
5	Petroleum ether	1.35%

Table3. .1.3:Phytochemicals present in various extracts of *Feronia limonia* leaves.

Sr. No.	Chemical constituents	Aqueous extract	Ethanol extract	Chloroform extract	Acetone extract	Petroleum ether extract
1	**Test for Carbohydrate**					
	a) Molisch test	---	+++	---	---	---
	b) Benedicts test	---	+++	---	---	---
	c) Fehling test	---	---	---	---	---
2	**Test for alkaloids**					
	a)Mayer's test	---	+++	---	---	+++
	b)Wagner's test	---	---	---	---	+++
	c) Dragendroff's test	---	---	---	---	---
	d)Hagner's test	---	---	---	---	---
3	**Glycosides**					
	a) Modified Borntrager's test	---	----	---	---	+++
	b) Legal's test	---	---	---	---	+++
4	**Saponins**					
	a) Froth test	+++	+++	---	---	---
	b) Foam test	+++	+++	---	---	---
5	**Phytosterols**					
	a) Salkowski's test	---	---	+++	---	+++
	b) Libermann Burchard's test	---	---	---	---	---
6	**Phenols** Ferric chloride test	---	+++	+++	+++	+++
7	**Tanin**					
	a) Gelatin test	---	+++	+++	+++	+++
8	**Flavanoids**					
	a) Alkaline test	---	+++	+++	+++	+++
	b) Lead acetate test	---	+++	---	---	+++
9	**Proteins & amino acid**					
	a) Xanthoproteic test	+++	+++	---	---	---
	b) Ninhydrin test	+++	+++	---	---	---

Table 3.1.4: Antibacterial activity of *Feronia limonia* leaves in different solvent.

Sr. No.	Name of organism	Aqueous extract mm	Ethanol extract mm	Chloroform extract mm	Acetone extract mm	Petroleum ether extract mm
1	*Staphylococcus aureus*	8	2	-	-	-
2	*Salomonella typhimurium*	-	-	-	1	-
3	*Proteus vulgaris*	5	4	-	-	-
4	*Pseudomonas aeruginosa*	4	2	-	-	-
5	*B.megaterium*	10	-	-	-	-

3.2.*DALBERGIA SISSOO:*

Table 3.2.1: Ash analysis of *Dalbergia sissoo* leaves.

Sr. No.	Type of ash	Percentage(w/w)
1	Total ash	8.70%
2	Acid insoluble ash	3.90 %
3	Water soluble ash	4.67 %

Table. 3.2.2: Percentage extractive value of *Dalbergia sissoo* leaves

Sr. No.	Type of extractive value	Percentage(w/w)
1	Water	18.05%
2	Ethanol	22.50 %
3	Chloroform	4.07 %
4	Acetone	21.70 %
5	Petroleum ether	9.10 %

Table3.2.3: Phytochemicals present in various extracts of *Dalbergia sissoo* leaves.

Sr. No.	Chemical constituents	Aqueous extract	Ethanol extract	Chloroform extract	Acetone extract	Petroleum ether extract
1	**Test for Carbohydrate**					
	a) Molisch test	---	+++	---	---	---
	b)Benedicts test	---	---	---	---	---
	c)Fehling test	---	---	---	---	---
2	**Test for alkaloids**					
	a)Mayer's test	---	---	+++	---	+++
	b)Wagner's test	---	---	---	+++	+++
	c)Dragendroff's test	---	---	---	---	---
	d)Hagner's test	---	---	---	---	---
3	**Glycosides**					
	a)Modified Borntrager's test	+++	+++	+++	+++	+++
	b)Legal's test	+++	+++	+++	---	+++
4	**Saponins**					
	a)Froth test	---	+++	+++	+++	+++
	b)Foam test	---	+++	+++	---	+++
5	**Phytosterols**					
	a)Salkowski's test	+++	+++	---	---	---
	b)Libermann Burchard'stest	---	---	---	---	---
6	**Phenols**					
	a) Ferric chloride test	+++	+++	+++	+++	+++
7	**Tanin**					
	a)Gelatin test	+++	+++	+++	+++	+++
8	**Flavanoids**					
	a)Alkaline test	+++	+++	+++	---	+++
	b)Lead acetate test	+++	+++	+++	+++	+++
9	**Proteins & amino acid**					
	a)Xanthoproteic test	---	+++	---	---	---
	b)Ninhydrin test	---	---	---	+++	---

Table 3.2.4: Antibacterial activity of *Dalbergia sissoo* leaves in different solvent.

Sr. No.	Name of organism	Aqueous extract mm	Ethanol extract mm	Chloroform extract mm	Acetone extract mm	Petroleum ether extract mm
1	*Staphylococcus aureus*	5	6	-	1	-
2	*Salomonella typhimurium*	7	7	-	2	-
3	*Proteus vulgaris*	8	4	-	-	-
4	*Pseudomonas aeruginosa*	7	6	-	6	-
5	*B.mgeaterium*	8	6	-	3	-

3.3.*TERMINALIA ARJUNA :*

Table 3.3.1: Ash analysis of *Terminalia arjuna* leaves.

Sr. No.	Type of ash	Percentage(w/w)
1	Total ash	8.63%
2	Acid insoluble ash	3.95 %
3	Water soluble ash	1.52 %

Table 3.3.2: Percentage extractive value of *Terminalia arjuna* leaves.

Sr. No.	Type of extractive value	Percentage(w/w)
1	Water	19.20%
2	Ethanol	23.25 %
3	Chloroform	11.01 %
4	Acetone	9.90 %
5	Petroleum ether	1.40 %

Table 3.3.3:Phytochemicals present in various extracts of *Terminalia arjuna* leaves.

Sr. No.	Chemical constituents	Aqueous extract	Ethanol extract	Chloroform extract	Acetone extract	Petroleum ether extract
1	**Test for Carbohydrate**					
	a) Molisch test	+++	+++	+++	+++	+++
	b)Benedicts test	+++	---	+++	+++	---
	c)Fehling test	+++	---	+++	+++	+++
2	**Test for alkaloids**					
	a)Mayer's test	+++	---	+++	+++	+++
	b)Wagner's test	+++	---	+++	+++	---
	c)Dragendroff's test	+++	---	+++	+++	---
	d)Hagner's test	+++	---	+++	+++	---
3	**Glycosides**					
	a)Modified Borntrager's test	+++	+++	+++	+++	---
	b)Legal's test	+++	+++	---	---	---
4	**Saponins**					
	a)Froth test	---	+++	+++	---	+++
	b)Foam test	---	+++	+++	---	+++
5	**Phytosterols**					
	a)Salkowski's test	+++	---	+++	+++	---
	b)Libermann Burchard's test	+++	---	+++	+++	---
6	**Phenols**					
	a) Ferric chloride test	+++	---	+++	+++	+++
7	**Tanin**					
	a)Gelatin test	+++	+++	+++	---	+++
8	**Flavanoids**					
	a)Alkaline test	+++	+++	+++	+++	+++
	b)Lead acetate test	+++	+++	+++	+++	+++
9	**Proteins & amino acid**					
	a)Xanthoproteic test	+++	+++	+++	+++	+++
	b)Ninhydrin test	+++	---	+++	+++	+++

Table3.3.4: Antibacterial activity of *Terminalia arjuna* leaves in different solvent.

Sr. No.	Name of organism	Aqueous extract mm	Ethanol extract mm	Chloroform extract mm	Acetone extract mm	Petroleum ether extract mm
1	*Staphylococcus aureus*	9	-	-	7	-
2	*Salomonella typhimurium*	-	-	-	9	-
3	*Proteus vulgaris*	7	4	-	5	-
4	*Pseudomonas aeruginosa*	7	5	-	6	-
5	*B.megaterium*	6	6	-	5	-

3.4.*BAUHINIA RACEMOSA:*

Table3.4.1: Ash analysis of *Bauhinia racemosa* leaves.

Sr. No.	Type of ash	Percentage(w/w)
1	Total ash	6.22 %
2	Acid insoluble ash	4.32 %
3	Water soluble ash	5.10 %

Table3.4.2: Percentage extractive value of *Bauhinia racemosa* leaves

Sr. No.	Type of extractive value	Percentage(w/w)
1	Water	16.85 %
2	Ethanol	14.71 %
3	Chloroform	1.72 %
4	Acetone	3.14 %
5	Petroleum ether	6.58 %

Table 3.4.3:Phytochemicals present in various extracts of *Bauhinia racemosa* leaves.

Sr. No.	Chemical constituents	Aqueous extract	Ethanol extract	Chloroform extract	Acetone extract	Petroleum ether extract
1	**Test for Carbohydrate**					
	a) Molisch test	+++	+++	+++	---	+++
	b)Benedicts test	---	+++	+++	---	---
	c)Fehling test	+++	---	+++	---	+++
2	**Test for alkaloids**					
	a)Mayer's test	+++	+++	+++	---	+++
	b)Wagner's test	+++	+++	---	---	---
	c)Dragendroff's test	---	---	---	---	---
	d)Hagner's test	---	---	+++	---	+++
3	**Glycosides**					
	a)Modified Borntrager's test	+++	----	---	---	---
	b)Legal's test	+++	---	---	---	---
4	**Saponins**					
	a)Froth test	+++	---	---	---	---
	b)Foam test	+++	---	---	---	---
5	**Phytosterols**					
	a)Salkowski's test	+++	---	---	+++	---
	b)Libermann Burchard's test	+++	---	---	---	---
6	**Phenols**					
	a) Ferric chloride test	+++	---	---	+++	+++
7	**Tanin**					
	a)Gelatin test	+++	+++	---	+++	+++
8	**Flavanoids**					
	a)Alkaline test	+++	+++	---	+++	---
	b)Lead acetate test	+++	+++	---	+++	---
9	**Proteins & amino acid**					
	a)Xanthoproteic test	---	+++	---	---	---
	b)Ninhydrin test	---	---	---	---	---

Table3.4.4:Antibacterial activity of *Bauhinia racemosa* leaves in different solvent.

Sr. No.	Name of organism	Aqueous extract mm	Ethanol extract mm	Chloroform extract mm	Acetone extract mm	Petroleum ether extract mm
1	*Staphylococcus aureus*	-	5	-	-	-
2	*Salomonella typhimurium*	-	5	-	5	-
3	*Proteus vulgaris*	2	4	-	3	-
4	*Pseudomonas aeruginosa*	-	2	-	7	-
5	*B.megaterium*	-	3	-	6	-

4.RESULT AND DISCUSSION:

4.1.1. Toxonomical Classification of *Feronia limonia.*

Kingdom : Plantae

Division : Magnoliophyta

Class : Magnoliopsida

Order : Sapindales

Family : Rutaceae

Genus : *Feronia*

Species : *Limonia*

4.1.2. Traditional Uses of *Feronia limonia.*

The unripe fruits having sour taste, aromatic, astringent, constipating, alexipharmic properties therefore are used in diarrhoea, pruritus and pharyngodynia. It is used to remove itching of the body, increases vata, pita and kapha, useful in whooping cough. It is used in place of bael in the treatment of diarrhoea and dysentery.

The ripe fruits are having sour and sweet taste, difficult to digest, refrigerant and used to cure cough, dysentery, heart diseases, vomiting, blood impurities, good for throat, asthma, consumption, tumours, opthalmi and leucorrhoea. The juice put in the ear cures earache. According to Yunani the fruits are cardiotonic, tonic to the liver and the lungs, astringent and binding, diuretic, strengthening the gums. The juice is good for stomtitis, and sore throat, useful in biliousness. It is beneficial in scurvy and sore throat. Fruit pulp is sour, sweet, edible stomachic, stimulant and astringent. The pulp is applied externally as a remedy for the bites of venous insects. Pulps with honey are given for hiccup and difficulty of breathing. Pulp is used

for affections of gums and throat and to tone the breast. Fruit pulp is also used by tribal people against boils and amoebiosis. Pulp of the ripe fruit is mixed in butter milk and taken once daily, for 3 days as vermifuge. Ripe fruit along with jiggery is given once a day for 1 month against diabeties.

The leaves of *Feronia limonia* are aromatic and carminative, therefore juice of leaves is given to children suffering from stomach troubles. The leaves are used as astringent, good for vomiting, hiccough and dysentery. In Ayurveda the leaves are traditionally used as antiemetic, aromatic, astringent, carminative, cardiotonic, expectorant, purgative, useful in anorexia, bronchitis, calculus, cardiac debility, cough, diarrhea and gastropathy. The bark is occasionally prescribed for biliousness and useful in liver diseases.

Transparent gummy substance exuding from the stem when cut and broken resembling gum are used in bowel affections and to relive tenesmus reduced to powder and mixed with honey, it is given in dysentery and diarrhoea. The gum is demulcent and constipating, and is useful in gastropathy, haemorrhoids and diabetes [1].

4.1.3. Ash analysis of *Feronia limonia.*

For present investigation sample leaves of *Feronia limonia* was taken and burnt completely in presence of oxygen. The ash was weighed till constant weight is obtained. Total ash percentage was found to be 7.3%. Further, ash was treated in HCl and acid insoluble ash was treated in HCl and acid insoluble ash was found to be 2.10%. Similarly water soluble ash found to be 4.05% [Table.3.1.1]. The ash represents inorganic material present, particulary metal oxide.

It is reported that [2] the fruit of three *ficus* species contain 5.88 to 7.44% of total ash. The value obtained for *ficus benghalesis* L. is very close to value obtained in our case. The fruit

contain 1.58% of acid insoluble ash, which is less compared to our *Feronia limonia* ash.The gum obtained from stem of *Mangifera indica* [3] shows the total ash is 2.77% which is less than our sample of *Feronia limonia* the acid insoluble ash was 0.50% that is also less than our sample. The ash indicates the presence of carbonate, phosphate, silicates and silica along with metal oxide and it is also evident that low value of total ash and acid insoluble ash obtained indicate low level of contamination during gathering and handling.

4.1.4. Extractive value of *Feronia limonia.*

For present investigation, the samples leaves of *Feornia limonia* were extracted with differents solvent such as water, ethanol, chloroform, acetone and petroleum ether [Table.3.1.2]. The extractive value of water was found to be 7.75% for ethanol, 5.10% chloroform 1.05%, acetone 4.80% and petroleum ether 1.35%.The percentage yield of water and ethanol extract was more than that of the petroleum ether extract. The polar solvent was able to extract more of extractive than the non polar solvent.

The bark of *Saraca indica* extractive value in water is 5.92% were [4] reported. Which is comparable with our aqueous extract. Also matches with ethanol extractive value. Benzene extractive value were 3.59%. It is reported that leaves, bark and stem of *Nauclea latifolia, Bridelia afroliridis*[5] and extracted with solvent methanol and petroleum ether. The extractive value of methanol extract of bark of *Bridelia afroliridis* was 6.2% which is higher than our ethanol extract.Also petroleum ether extract value of *Nauclea latifolia* is 4.3% which is higher than our petroleum ether extract value. Different extract of different part i.e. stem, flower and root of *Taraxacum officinale* shows percentage yield as 25% in water which is higher than our *Feronia limonia* yield [6].

The churna of madhu mardan [7] contain 8.75% total ash. The value obtained for this, churna is close to ash value obtained in our case. The churna shows 13.98% of acid insoluble ash which is higher than our case, where as water soluble ash is 54.05% is also too much higher than our ash value.

A saraswathy and M. Girijarani [8] observed that the total ash of *Cuvacak kutori* was 5.15%. But acid insoluble ash was 0.55%. They assumed that the ash is due to the presence of acidic and basic radicals in the sample.

4.1.5. Phytochemical analysis of *Feronia limonia.*

Phytochemical analysis of *Feronia limonia* in aqueous extract shows presence of saponin and amino acid. Whereas ethanol extract indicates the presence of carbohydrate, saponin, phenol, tannin, flavonoids, protein and amino acid. Chloroform extract only shows presence of phenol, tanin, flavonoids and saponins. Acetone extract also indicates presence of phenol, tannin and flavonoid, while petroleum ether extracts shows presence of carbohydrate, glycosides, phenol, tanin and flavonoids [Table.3.1.3].

Phytochemical screening [9] of methanolic extract of *Vitex negundo* L. root and *Aegle marmelos* corr. leaves was reported presence of alkaloid, phenol, steroids, saponins coumarins and flavonoids. These results are similar both in petroeum ether extract of root of *Vitex negundo L*. and *Aegle marmelos* corr. Among the four extract, methanol extract of root of *Vitex negundo* and *Aegle marmelo* showed complete loss of micro-filarial motility after 48 hour exposure. This has highly significance compared to respective control. Hence significant level of anti–microfilarial effect reported with root of *Vitex negundo* L. and leaves of *Aegles marmelos* corr.as compared to control support their medicinally use.

The extracts of leaves of *Saraca indica* [10] in solvent such as chloroform, methanol petroleum ether and water extract shows central nervous system depressant properties. Different extract of *Sarsca indica* leaves caused an earlier onset of the effect of phenobabitone (sleep latency). When compared with the central and it also increased the duration of action of sleeping time significantly. Locomotors activity considered as an increase in alertness and decrease in locomotor activity indicates sedative effect. Many researchers showed plant containing flavonoids, saponin and tanin are useful in many CNS disorder.

Different organic extract of the leaves of *Aegle marmelos* [11] have been reported to possess alkaloid, glycosides, terpenoids, saponin, tanin, flavonoids and steroids. Both aqueous and alcoholic extract of *Aegle marmelos* shows good antioxidant activity and other pharmacological properties as antiulcer, antidiabetic, anti-diarrhoea, anti-inflammatory, antipyretic, antimalerial, anticancer and antibacterial activity.

The different phytochemical compound [12] detected are known to have beneficial importance in medicinal sciences. The bio-active compounds obtained from plants are used to treat various aliments caused by microganism were reported. The most important bioactive compound arealkaloids, phenolic compound, flavonoids and tanin that may be evolved in plants as self and defence against pest and pathogens. Analysis of extract of *Aegle marmelos* revealed that presence of tannin, flavonoids, saponin, phenols, alkaloids, phytosterol and terpenoids. Phytochemical analysis of *Aegle marmelos* plant extract reported the presence of constituents, which are known to have medicinal as well as physiological activities.

Phytochemical analysis of aqueous stem, bark extract of *Schotra latifolia* Jacg. [13] was reported the presence of tanin, alkaloids, steroids, phenol glycosides and saponin. Phenolic compound are well known as antioxidant and scavenging agent against free radical associated

with oxidative damage. The presence of these compounds in *Schotra latilolia* may give credence to its local usage for the management stress induced aliments. Tanin have used traditionally for the treatment of diarrohea, hemorrhage and detoxification. Flavonoids are important secondary metabolite of plant modulating lipid peroxidation involved in atherogenesis, thrombosis and carcinogenesis. It has been confirmed that pharmacological effect of flavonoids is co-relating with their antioxidant activity. Furthermore ethnomedicinal usage of *Schotra latifolia* extract might be attributed to the high concentraction of flavonoids and therefore it could support its usage for management of hypertension, diabetes.

Aqueous and ethanol extract root, stem and bark of *Ficus platyphylla* [14] were reported presence of flavonoids, glycosides, alkaloids and phenols, saponin and tannin in both the extract. These show the generality of the components in medicinal plant. Primarily biological actions are due to these components in a very complicated concert of synergistic of anatagonistic activities. To large extent the phonological age of the plant, percentage humidity of the harvested material, situation and time of harvest and method of extraction are possible source of variation the chemical composition, toxicity and bioactivity of the extract.

Phytochemical screening of *Baliospermum montanum* muell. Arg. [15] leaves in different solvent were reported the presence of the secondary metabolites. The ethanol and chloroform extract shows maximum bio-efficacy compared with other solvent due to presence of more compounds such as saponin, steroids, tanin, phenol, triterpenoids, alkaloids and flavonoids. Other two hexane and petroleum ether extrtact were found to be ineffective and the selected pathogenic bacteria, due to presence of less active compound saponin and alkaloids.

The aqueous extract of fruit pulp of *Aegle marmelos* [16] were reported the presence steroids, saponins, flavinoids, lignin and alcoholic extract showed presence of allkaloid and

saponin. Flavonoids and tanin are a major group of compounds that act as primary antioxidant of free radical scavengers. The antioxidative properties might be attributed to the presence of phytochemicals, such as flavonoids and other polyphenolic compounds. Polyphenols have been know to medicinal activity as well as showing physiological activity. The compounds such as flavonoids, are responsible for the radical scavenging activity of plant.

4.1.6. Antibacterial activity of *Feronia limonia.*

For antimicrobial activity of different extract of *Feronia limonia* against *Staphylococcus aureus, Salomella typhimurium, Proteus vulglaris, Psedomanas aeruginosa* and *B . megateriums* were studied. In aqueous extract zone of inhibiton is 4-10 mm. whereas ethanol extract shows zone of inhibition 2-4mm. But acetone and peteoleum ether extract does not show any zone of inhibition [Table.3.1.4].

The methanol leaf extract [17] of *Azardirachta indica* reported significant antibacterial activity against *E. coli , Pseudomonas aeruginosa , Kiebsiella pneumonia, Streptococus pyrogens, Staphylococus aureus*. Maximum zone of inhibition is 18 mm but for our aqueous extract maximum zone of inhibition is l0 mm .There are about 4500 plant species in India with capacity to produce lagre number of organic chemical concentrated hot spot in the region o eastern Himalaya, of high structural diversity. The presence of different phytochemical with biological activity can be valuable for therapeutic index. That biological activity is due to the biological active phytochemical were present in the methanolic extract of some medicinal plant.

Antibacterial effect of some selected Indian medicnal plant [18] were reported on bacterial strain like *B. cereus, Staphylococus aureus, Enterbacter aerogenes, E. coli and Kiebsiella pneumoniae*. The solvent used for the extraction of plant were water and methanol. The aqueous extract of only three plants showed antibacterial activity i e *Caesalpinia pulcherrima, Casuarina*

equisetifolia, Euphorbia hirta. In our extract only aqueous and ethanol extract only show antimicrobial activity. The other extract did not show any antimicrobial activity. On other hand methanol extract of all plants show antibacterial activity towords one or another bacterium.Similar resultls were also reported, diseases such as pneumonia, urinary and respiratory tract infection, nosocomial pathogens and apportunistic infections caused by klebsiella species. The reported plants were most active against gram-positve bacteria *B. cereus*. The extract of *Abrus precatorius, Cardiospermum halicacabum* and *Gmelina asiatica* could not show any zone of inhibition against bacterial strain.

The leaves extract of five plant species [19] belonging to different families for their phytochemical and antimicrobial activity were reported that one percent extract of all the plant showed some degree of antibacterial activity. It was significant in *Acalypha indica, Camella sinesis, Plectranthus amboinicus, Curcuma, Longa and Rauvolfia tetraphylla*. The extract of *Camellica sinesis* and *Acalypha indica* was most effective against *Staphylococus aureus*. Green tea leaves and extracts have shown to be effective against bacteria responsible for bad breath. The compound Epicatechin gallate is being researched because in vitro experiments showed it can reverse Methicillin resistance in bacteria like *Staphylococcus aureus.*

Different extract of leaves [20] of *Mangifera indica* in petroleum ether, ethyl acetate and ethanlic extract show maximum zone of 4 mm with *S. typhi, B. substilis, E, coli,* and *K. pneumonia*. Literature survey reveals that, the *Mangifera indica L.* var. Rasapuri root extract exibits potent antimicrobial activity compared with the leaves of *Mangifera indica* plant. Therfore these compounds are known to be biologically active. Tanin has been found to form irreversible complexes with proline-rich protein resuting in the inhibition of the cell protein synthesis.

Antibacteial screening of [21] twenty plants (*Bidens pilosa*) leaves powder was reported that *C. arabica* exhibited a zone of inhibition from 10 to14 mm. Based on standards activity of this plant shows antibacterial potentiality from partially active to active against all four test organism with the highest zone of inhibition observed against *S. aureus, P. aeruginosa.* It is inactive against *S. typhirium*. The studied plants having potential antibacterial activities with varying effects as can be inferred from there zone of inhibition.

Ficus religiosa L. and *Ficus bengalensis L.,* [22] which belongs to family *Moraceae* bark of these plants were reported for in vitro antibacterial activity and phytochemical analysis. The extraction of bark was carried out in different solvent like aqueous, methanol, chloroform, petroleum ether and hexane and were screened for antibacterial activity againt *E coli* against diarrhoeal patients. Aqueous extract shows zone of inhibition 8-12mm. For methanol extract zone of inhibition, is 12-16 mm. But for petroleum ether and hexane there is no zone of inhibition which matches with our Petroleum ether and chloroform extract. Among the various solvent extract methanol extract found to be more active against all the enterotoxigenic bacteria *E. coli*. which is isolated from diarroheal patient.

4.2.1. Toxonomical Classification of *Dalbergia sissoo.*

Kingdom: Plantae

Division : Magnoliophyta

Class : Magnoliopsida

Order : Fabales

Family : Fabaceae

Genus : *Dalbergia*

Species: *Sissoo*

4.2.2. Traditional Uses of *Dalbergia sissoo.*

As a Ayurvedic medicine, various parts of *Dalbergia sissoo* are used to treat or cure different diseases.The sissoo oil obtained from seed is used to treat blue itching, burning on skin andscabies.The juice prepared from the leaves of shisam is used to alleviate profuse menstruation, used in painful micturition and to cure boils and pimples.The leaves juice is also used to eliminate pus in urine and to treat iaundice.Futher it is used to reduce swelling of the breast. The decoction of the bark and leaves is useful in gonorrhea and leprosy [23].

4.2.3. Ash analysis of *Dalbergia sissoo.*

For present study sample leaves *Dalbergia sissoo* were taken and burnt completely in presence of oxygen. The ash was weighed till constant weight is obtained. Total ash percentage obtained is 8.70 %. Further ash was treated in HCl and acid insoluble ash was found to be 3.90 % . Similarly water soluble ash was found to be 4.67 %. The ash represents inorganic material present particularly metal oxide [Table.3.2.1].

It is reported [24] that the leaves of *Tinospora cordifolia* show total ash as 6.2 %. Acid insoluble ash was0.8 % and water soluble ash was 0.14 %. Stem bark of *Ficus virens* was reported [25] that total ash were 11.97%, with acid insoluble ash was 2.59 %.

4.2.4. Extractive value of *Dalbergia sissoo.*

The extractive value of *Dalbergia sissoo* in different solvent as in aqueous extract as 18.05 %, ethanolic extractive value as 22.50%, cholorform extractive value as 4.07 %, acetone extractive value as 21.70% and petroleum ether extractive value is 9.10% [Table.3.2.2].

It is reported [26] that methanolic extract of *Taraxacum officinale* stem extractive value was 21%. Ethanolic extractive value, aqueous extractve value of stem, root, and flower was 25%, 26% and 27%. Extactive value of hexane was 11% for root of *Taraxacum officanale*.

4.2.5. Phytocyhemical analysis of *Dalbergia sissoo*.

Phytochemical investigation of *Dalbergia sissoo* shows that aqueous extract contains glycosides, phytosterols, phenol, tanin and flavonoids. Ethanolic extract indicates there is presence of carbohydrate, glycosides saponins, phytosterols, phenol, tanin, flavonids and amino acids. Chloroform and acetone extract shows presence of alkaloids, glycosides, saponins, phenol, tanin and flavonoids, while petroleum ether shows similar phytochemicals [Table.3.2.3].

Whole grains are rich source of fibre, vitamins, mineral and phytochemicals including phenolic compounds and sterols. Most of whole grain are phenolics and in bound form 85% in corn, 76%in wheat and 75% in oats. The beneficial effects associated with whole grain consumption are in part due to exsitance of the unique phytochemical of whole grains. The presence of phenolic and flavonoids content impart greater health benefits. When consumed as a part of diet, and help reduce the risk of chronic diseases [27].

Phytochemical screening of leaves of *Bauhinia tomentosa, Cassia accidentalis, Caesalpinia bondue* and *Parkinsonia aculeate* belonging to family *Caselpiniaceae* has been extracted with benzene, chloroform and petroleum ether [28] shows presence of alkaloids, flavonoids, glycosides and tannin. Phytochemicals like flavonoids and phenols are strong antioxidants and have an important role in the health care system.

Ethno-botanical and phytochemical screening of some medicinal plant were carried out. After investigations it is found that these plants contain some important chemicals like alkaloids, phenols, steroids, saponins was [29] reported. *Adhatoda vasica* contain number of phytoconstituents. Whereas other plants contain some more or less amount of phytoconstituents. Therefore plants serve as regular source of medicine.

Investigation of phytoconstituents present within the aqueous and methanol extract of *Aegle marmelos* seeds were [30] reported the presence of alkaloids, glycosides flavonoids, tanin and phenolic compound. The maximum phenolic content was found in methanolic extract. Preliminary phytochemical analysis of leaves of *Adhatoda vasica* [31] shows presence of flavonoids tanin, protein, phenolic compounds and glycosides. Presence of flavonoids and tanin in extract of leaves of *Adhatoda vesica* is responsible for its as wound healing activity .

4.2.6. Antimicrobial activity of *Dalbergia sissoo.*

Antimicrobial activity of *Dalbergia sissoo* leaves in five solvent revealed that, in aqueous extract zone of inhibition for all organism was 5-8 mm. While ethanol extract shows zone of inhibition in the range 1-6 mm. Whereas chloroform and petroleum ether extract shows no zone of inhibition.

Alcoholic extract of leaves and root of *Adhatoda zeylanica* [32] possess antibacterial activity against *E. coli* and *Staphylococcus aureus* .Whereas aqueous extract shows activity

against *S. aureus*. Therefore it possesses activities like abortificient, anti- inflammatory, antiulcer and antioxidant [Table.3.2.4].

Arvinader kaur et. al was reported [33] evaluations of antioxidant potential of stem bark extract of *Dalbergia sissoo*. Finally results shown among the different extract of stem of plant *Dalbergia sissoo,* chloroform extract possess marked antioxidant activity, whereas methanolic extract moderate activity in vitro antioxidant assay.

Antibacterial activity of different extract of *Jatropha curcas* root was [34] reported that in aqueous extract zone of inhibition is 4-7 mm. Whereas ethanol extract showszone of inhibition is 4-7 mm. Haslam et. al was reported that plant extract and their product are used in many parts of world as active principle in herb remedies. They are used locally in treatment of infections, many centuries before scientific studies were discovered.

Antibacterial activity of some medicinal plant against *E. coli* and *Staphylolcocus aureus* were reported [35] the zone of inhibition is 1-5mm for methanol extract of *O. americanum, S. cumin*i, *M. konigii*, *S. aromaticum*. For our ethanolic extract of *Dalbergia sissoo* gives zone of inhibition in the range 4-7mm, this is close to earlier reports.

The seeds of *S. cumini* have good antibacterial activity and phytochemicals evolved defencse against predation infections. Flavonoids prevent oxidative all damage suggesting antiseptic, anticancer, anti inflammatory effect and hypersensitivity properties.

4.3.1. Toxonomical classification of *Terminalia arjuna.*

Kingdom : Plantae

Division : Magnoliophyta

Class : Magnoliotae

Order : Myrtales

Family : Combretaceae

Genus : *Terminalia*

Species : *Arjuna*

4.3.2. Traditional uses of *Terminalia arjuna.*

Due to curative properties of *Terminalia arjuna*it is known as ayurvedic plants. It is used for different diseases of heart problems including hypertension, angina and blocks in arteries. It is very useful in the treatment of any sort of pain in heart such as falls, spermatorrhoea, ecchymosis and sexually transmitted diseases as gonorrhea and thought to be a useful astringent, cooling, aphrodisiac, cardio-tonic and is used for ulcers, leucorrhoea, diabetes, cough, tumor, excessive perspiration, asthma, inflammation and skin disorders etc [36].

4.3.3. Ash analysis of *Terminalia arjuna.*

For present investigation sample leaves of *Terminalia arjuna* was taken and burnt completerly in presence of oxygen. The ash was weighed till constant weight is obtained. Total ash observed is 8.63 %. Further ash was treated in HCl and acid insoluble ash was found to be 3.95 %. Similarly water soluble ash found to be 1.52 %. The ash represents presence of metal oxide [Table.3.3.1].

Archa Vermani et.al [37] reported that total ash of stem of *Tinospora cordifolia* was 7.2 %. Acid insoluble ash was 11.01 %, whereas water soluble ash was 25.42 %.

4.3.4. Extractive value of *Terminalia arjuna*.

For presnt investigation sample leaves *Terminalia arjuna* was taken and extracted with different solvent such as water, ethanol, chloroform, acetone and petroleum ether [Table.3.3.2]. The extractive value of water is 19.20 %, in chloroform is 11.01%, in ethanol is 23.25 %, in acetone is 9.90 % and petroleum ether shows extractive value of 1.40 %.

4.3.5. Phytochemical analysis of *Terminalia arjuna.*

Terminalia arjuna investigated for its phytoconstituents in different five solvent. In aqueous extract there is presence of alkaloids, carbohydrate, glycosides, phenol, tannin, flavonoids and amino acid. In ethanol extract, glycosides, saponins, tannin, flavonoids were presents. While in chloroform, acetone and petroleum ether extract carbohydrate, alkaloids, phenol, tanin, flavonoids and amino acid are obtained [Table.3.3.3].

The stem, bark and leaves of *Ficus reliogiosa* [38] has phytoconstituents as phenols, tannin and steroids. The active constituents from root bark *Ficus religiosa* was found to be glycosides. The seed contain glycosides and albuminoids. The fruit of *Ficus religiosa* contain appreciable amounts of phenol and flavonoids. The leaves can be used to alleviate fevers, bleeding wounds constipation and dysentery.

Phytochemical screening of some antidysenteric medicinal plant shows presence of alkaloids, flavonoids, glycosides, sterols and tannin [39]. Plants containing alkaloids, flavonoids, saponin, sterol and reducing sugar shows antibacterial activity also. Ethanolic, aqueous and acetone extract of *Euphorbia hirta*, shows presence of alkaloids, tanin, saponin and flavonoids. Ethanol extract of plant species reveals presence of most of the phytoconstituents in comparision

to other extract. It reported [40] that various primary and secondary metabolites they have application in pharmaceutical industry.

Stem bark extract of *Ficus religiosa* prepared by different method of extractions shows presence of tannin, alkaloids, saponis, flavonoids, sterols and reducing sugar. The anti-diarrhoeal activities of flavonoids have been ascribed to their ability to inhibit intestinal motility and hydroelectrolytic condition. Tanin and tanic acid present in antidiarroheal plant denature proteins in the intestinal mucosa by forming protein tannetes which make the intestinal mucosa more resistant to chemical alterations and reduce secreation [41].

Phytochemical studies of some medicinal plant (*Aloe vera, Tamarindus indica, Opuntia and Citrus*) shows that polysaccharides in *Aloe vera* gel had therapeutic properties such as anti-mflammatory, wound healing, promotion of radiations damage repair, antibacterial, antiviral, antifungal, antidiabetic activity [42]. Presence of tannin saponin, sterol and phenol occur in plants mostly in the bark, leaves and fruit of these plants. Some alkaloid and saponin have been found to possess antimicrobial activity.

Phytochemical screening of methanol and petroleum ether extract (N*auclea latifolia, Bridella atroviridis and Zanthoxylem gilletii*) shows [43] presence of alkaloids, tanins, saponins, sterols and phenols was reported occur in plants mostly in the bark, leaves and fruit of these plants. Some alkaloids and saponin have been found to possess antimicrobial activity.

4.3.6. Antimicrobial activity of *Terminalia arjuna*.

Antimicrobial activity of *Terminalia arjuna* in different solvent ranges 6-7mm zone of inhibition in aqueous extract. In ethanolic extract zone of inhibition is 4-6mm. whereas acetone

extract shows zone of inhition 5-9mm. But chloroform and petroleum ether extract does not show zone of inhibition [Table.3.3.4].

Antimicrobial activity of *Terminalia arjuna* bark has been reported in the literature that in ethanolic extract zone of inhibition ranges from 14-20 mm against gram positive and gram negative bacteria. Flavonoid is also known as natures tender drug, possess numerous biological properties. Recent report of antiviral, antifungal antioxidant, anti-inflammatory, antithrombic, anticarcinogenic, hepatoprotective activities of flavonoids have generated interest in studies of flavonoid containing plants. Of these biological activities, the anti-inflammatory capacity of flavonoids has long been utilized in Chinese medicine and the cosmetic industry as a form of cude plant extract [44-45].

Terminalia arjuna leaves were subjected to antimicrobial activity shows zone of inhibition 5-9 mm [46], for hydroalcoholic extract. *Terminalia arjuna* is a good hypochloteremic, hypolipidemic, anticoagulant, anti-hypertensive, antifungal and antibacterial agent. Many useful phytocontituents have been isolated from *Terminalia arjuna,* which includes triterpenoids for cardiovascular properties, tanin and flavonoid for its anticancer properties. Bark, leaves and fruit of *Terminalia arjuna* have been used in indigenous system of medicine for different ailments.

Ethanolic leaf, fruit extract of *Terminalia arjuna* [47] against gram positive and gram negative bacteria shows zone of inhibition 9-11 mm. But our leaves extract of T*erminalia arjuna* shows zone of inhibition as 4-6 mm, which is less as compared to leaf, fruit extract of T*erminalia arjuna*. The ethanolic extract of *Terminalia arjuna* leaf fruit mixture was investigated for its potential bioactivity like antibacterial activity and has therapeutic value.

4.4.1. Toxonomical classification of *Bauhinia racemosa.*

Kingdom : Plantae

Division : Magnoliophyta

Class : Magnoliotae

Order : Rosales

Family : Caesalpiniaceae

Genus : *Bauhinia*

Species : *Racemosa*

4.4.2. Traditional uses of *Bauhinia racemosa.*

It can be used in cough conditions, asthma, abdominal distention also acts as a gargle for sore throats, prevent from skin diseases, or internally as a remedy for diarrhoea. It is helpful in managing skin discoloration, veiling, baldness, conditions involving bilious. Bark is alterative, anthelmintic, astringent and tonic. Paste of the bark is useful in the treatment of cuts and wounds, skin diseases, scrofula and ulcer. The dried buds are used in the treatment of piles, dysentery, diarrhoea and worms.

4.4.3. Ash analysis of *Bauhinia racemosa.*

For present investigation sample leaves of *Bauhinia racemosa* was taken and burnt completely in presence of oxygen.The ash was weighed till constant weight is obtained. Total ash percentage was found to be 6.22 %. Further ash was treated with HCl and acid insoluble ash was found to be 4.32%.Similarly water soluble ash found to be 5.10% [Table 3.4.1].

It is reported that root of *Bauhinia tomentosa* [48] total ash value were 5.73%. Acid in soluble value is 2.37%. While water soluble value is 3.75%. For *Bauhinia racemosa* Lam.[49]

leaves was reported the total ash value 6.32%. Acid insoluble and water soluble ash was 4.44% and 5.2% respectively.

4.4.4. Extractive value of *Bauhina recemosa.*

The extractive value of *Bauhinia recemosa* in different as aqueous extract 16.85%, ethanol extractive value 14.71%, chloroform is 1.72%, acetone extractive value 3.14%, whereas petroleum ether is 6.58% [Table 3.4.2].

It is reported that methanolic extractive value of *Mentha piperita*leaves [50] was 14.46%. The extractive values of leaves of *Thevetia peruviana* were 10.23%. Methanolic extractive value of *Ricinis communis* were 22.79%. The methanol yield extract of the *Androgrphis paniculata, Coleus amboinicus, Vitex negundo* and *Hylocereus polyrhizus* [51] was reported. The highest quantity of material was extracted from *Coleus amboinuius* i.e 5.28%. The lowest quantity was obtained from *Hylocereus polyrhizus* 1.22%. It was revealed that solvent ethanol and water extract is competent to yield greater amount of extract and also contain higher polar compound and tanin which acts as antimicrobial agents.

It is reported that percentage of dry extract of *Bauhinia purpurea* Linn. [52] leaves in aqueous extract was 18.58%, petroleum ether 6.68%, chloroform 1.725%, acetone 3.24%, methanol 17.93%. The chloroform extract was minimum in yield. Whereas aqueous extract shows maximum extractive value, thus indicating the presence of more polar contituents in the leaf extract.

4.4.5. Phytochemical screening of *Bauhinia racemosa.*

Phytochemical screening of *Bauhinia racemosa* in aqueous extract shows presence of carbohydrate, alkaloids, glycosides, saponin, phytosterols, phenol, tanin and flavonoids. While ethanol extract shows presence of carbohydrate, alkaloids, tanin and flavonoids.Whereas

chloroform extract shows presence of only carbohydrate and alkaloids. Acetone extract shows presence of phytosterol, tanin, phenol and flavonoids while petroleum ether extract shows presence of carbohydrate, alkaloids, phenols and tannin [Table.3.4.3].

A qualitative phytochemical analysis of *Azadirachta indica* was reported the presence of alkaloids, saponin phytosterol, flavonoids, and tanin. The medicinal value of secondary metabolites is due do the presence of chemical substance that produce a definite physiological active in the human body. The most important of these substances include alkaloids, steroids, and flavonoids fatty oil, resin, tanin, gum, phosphorus and calcium.For cell growth, replacement of body building [53].

Ethanolic extract of *Aegle marmelos* [54] plant material was reported that phytochemical screening shows the presences of alkaloids glycosides, saponin, tanin, flavonoids and steroids. The presence of alkaloid glycosides, saponins, tanin, flavonoids and steroids in the ethanolic extract of *Aegle marmelos* were responsible for its antimicrobial activity.

Phytochemical screening and quantitative estimation of the percentage crude yield of chemical constituents of the some Nigerian [55] plants (*Cleome rutidosperma, Emilia coccinea, Euphrobia, heterophylla, Physcalis bransilensis, Scorparia dulcis, Richardia bransilensis, Sida acuta, Spigelia anthelmia, Stachytarpheta cayennensis* and *Tridxa procums*) revealed that the leaves and stem were rich in alkaloids, flavonoids tanins and saponin, which is similar with our aqueous extract. These show medicinal activity as well as exhibiting physiological activity. The plants possessed very high level of alkaloids and flavonoids and are employed in medicinal use. They are also widely employed as livestock and poultry feed.

Seven medicinal plants in North- eastern India [56] in phytochemical screening revealed that plant (*Bryophyllum pinnatum, Ipomea aquatica, Oldenlandia corymbosa, Ricinus*

communis, Terminalia bellerica, Tinospora cordifolia, and Xanthium strumarium) extracts exhibit presence of phenols, tannin, flavonoids, saponin, glycoside, steroids, alkaloids, presence of these constituents which are known to exhibit medicinal as well as physiological activity. Presence of phenolic compound, possess biological property such as anticarcinogenic, anti-inflammation, cardiovascular protection and improvement of endothelial fuction, as well as inhibition of angiogenesis and cell proliferation activities. Due to phenolic compound it also shows antioxidant properties. The presence of saponin knows to produce inhibitory effect on inflammation. It is also having property of precipitating and coagulating red blood cells, cholesterol binding property and bitterness. Several workers have reported the analgesic antisplasmodic and antibacterial properties of alkaloids. Glycosides are known to lower the blood pressure.

Phytochemicals are dependable source for the treatment of different health problem [57]. Phytochemical analysis of twenty different medicinal plants (*Mentha spicata, Withania coagulaus, Perilla frutescums, Oenothcra bienris, Cannabis stative, Tribulus terrists, Acorus calamus, Adhatoda vasica, Achyranthus asper, Medicago sativan, Myrtus commanis, Chenopodium, Conuolvulus arrenisis, Erigeron steroids, Tegetis erecta, Solanumus nigrum, Echinacea purpurea, Withania sommifera, Paillea fruticosa, Mentha longifolia*) were reported.Which shows presences of reducing sugar, terpenoids, flavonoids, saponins, tannin alkaloids and glycosides.Although the absence of certain, phytochemical in one sample and its presence in the other can be safely attributed to various physiological and biosynthetic reactions taking place inside the plant.

Ethanolic extract of leaves and stem bark (*C. papaya, P. guajava, V. amygdalina* and *M. indica*) of different plant [58] investigated for its phytochemical shows presence of flavonoids,

terpenoids, saponin, tanin, and reducing sugar. All the plants exhibited potent antioxidant activity. The presence of flavonoids and tanin is likely to responsible for the free radical scavenging effect. Flavonoids, tannin and phenolic compounds act as primary antioxidant of free radical scavengers.

Phytochemical studies of leaves extract of different medicinal plant (*Alstonia scholaris*, *Catharanthus roseus*, *Nerium oleander*, *Tabernaemontana divaricata*, *Thevetia neriifolia*, *Withania somnifera* , *Adhatoda vasica* , *Cannabis sativa* , *Solanum nigrum*, *Plumeria alba and Achranthus aspera*) were carried [59]. Methanolic leaf extract shows secondary metabolites like glycosides, alkaloid, flavonoids, tanin, reducing sugar, saponin and terpenoids. Phytochemical constituents such as tanin flavonoids alkaloids and several other aromatic compounds serve as defense mechanisms against predation by many microorganism, insects and herbivores. The curative properties of medicin al plants are perhaps due to the presence of various secondary metabolites such as alkaloids flavonoids, glycosides phenols and saponins steroids.

Methanolic extracts of leaves (*Andrographis paniculata*, *Bauhinia acuminata*, *Clerodendrum indicum*, *Nerium odorum* and *Sida humilis*) of some medicinal plant [60] are subjected to phytochemical analysis. It shows the presence of different secondary metabolites like starch, alkaloids, flavonoids, tanins, reducing sugar, amino acid.

Leguminosae medicinal plant in Malaysia was studied for [61] phytochemical analysis. The presence of flavonoids triterpenoids, saponin and tanins in *A. auriculiformis* have been reported. Good DPPT free radical scavenging activities of *A. auriculiformis* are not only attributed to the presence of tanin but also leucoanthocyanidins which are abundantly in the plant.

4.4.6. Antibacterial activity of *Bauhinia racemosa.*

Antibacterial activity of different extract *Bauhinia reacmosa* against *Stapylocous aureaus, Salmonella typhimurum, Proteus valgaris, Pseudomonas aenginosa and B. megaterium* was evaluated. In aqueous extract zone of inhibition is 2mm for *proteus vulgaris*, for ethanol and acetone extract 2-7mm and for chloroformm and petroleum ether extract zone of inhibition is nil [Table.3.4.4].

Different extract of *Pakia clapperotiniana* leaves was [62] subjected to in vitroantibacterial assay against human pathogeniuc *E. coli* and *Salmonella* species. In these investigation aqueous extract shows no zone of inhibition. While in acetone, ethanol, methanol and petroleum ether extract zone of inhibition is 2-12mm.The inhibition produced by the plant extract against particular organism depends upon various extrinsic and intrinsic parameter, due to variable diffusability in agar medium.

Aegle marmelos leaves ethanol extract was reported [63] for antimicrobial activity. The zone of inhibition was 10-29mm. The results of the investigation showed that plant extract from *Aegle marmelos* has good antimicrobial activity against E. *coli, Pseudomonas aeruginosa* and *Bacillus subtilis* due to presence of different phytochemical. However *Staphylocous aureus* is considered resistant at different concentration amongest control drug penicillin.

Stem, root and leaves of *Mentha piperita* [64] extracted with ethanol, methanol ethyl acetate, chloroform, hexane petroleum ether and exhibit the zone of inhibition 3.8 -11 mm. From that antibacterial activity of leaf and stem extract against these used for wound healing and septicemia. Presence of tanin, terpenoids, phenol, flavonoids, glycosides are active against wide range of microbes. *Mentha piperita* possess potent antimicrobial activity and suggest that the

leaves extract contain effective active constitutes responsible for eleminating the bacterial pathogen.

In vitro antibacterial and antifungal properties [65] of five medicinal plants (*Andrographis paniculata, Bacopa monnieri, Centella asiatica, Nardostachys jatamansi, Saraca indica*) extracted with water. Its zone of inhibition 18mm for *C. asiatica* and *S. indica* shows minimum zone of inhibition 9mm. Also antifungal activity of these plants shows zone of inhibition 0.5-5mm. The comparative study shows the information about the ethnoproperties of these plants, which can be used as medicine.

Antibacterial screening of some [66] Algerian saharian medicinal plants (*Rantherium adpressum, Thymelia microphylla, Randonia africana, Oudneya fricana and Tamarix articulate*) against *S. aureus E. coli, p. aeruginosa, K. pneumoniae*. The most susceptible bacteria to the plant extract preparation were *S. aureus and p*. aeruginosa. *R. adpressum* extract being the most potent towards. *S. aureus*. All these medicinal plant extracts have traditional claim for antibacterial activity and these findings are in line with their indication as therapeutic properties for antibacterial claims.

References:

1. Qureshi Absar A., Kumar K. Eswar, Omer Shaista, *Feronia limonia* - A pathless travelled, *Int. J. Ayur. and Pharm.*,1(1), 2010 : 98 -106.
2. Ritu Mishra and Ashok kumar Tiwari, Preliminary phytochemical screening and HPTLC finger printing of fruit of three ficus species, *J. Chem. Pharm. Res*., 5(7), 2013 : 240-245.
3. Anoop Kumar Singh, R. Panner Selvam and T. Sivakumar, Isolation, characterisation and formulation properties of a new plant gum obtained from *Mangifera indic*a, *Int. J. Pharm. Biomed. Res.* 1(2), 2010 : 35-41.
4. Nataraj H. R. and S. K. Hiremath, Pharmacognostic and Phytochemical analysis of different market sample of ashoka, *Anc. Sci. life*, 29 (2), 2009 : 7-11.
5. Emeje M. et. al., Afr. J. Pharm pharmacol, 3, 2009 : 265-272.
6. M. Amin Mir, S. S. Sawhney, M. M. S. Jassal, Qualitative an quantitative analysis of phytochemicals of *Taraxacum officinale, J. pharm. Pharmacol*., 2(1), 2013 : 1-5.
7. Dhiraj savant, Premal Panchal and Amit Page, Evaluation of antidiabetic and antioxidant activities of madhumardan churna - A polyherbal ayurvedic formulation, *Int. J. of pharma. Res. Develop*., 5(3), 2013 : 191-199.
8. A saraswathy and M. Girijarani, Anonymous, pharmacopoeial standard on Ayurvedic formulations, central council for research in ayurvedic and siddha, min of H and F.W., New Delhi, 489-540,91989.
9. K. N. Sahare, V. Meshram Anandhraman, V G, Meshram, S U, Reddy M V R, Tumane, P M, Goswami, K., Antimicrofilarial activity of methanolic extract of *Vitex negundo* and *Aegle marmelos* and their phytochemical analysis, *Ind. J. Exp. Biol*, 46, 2008, 128-131.
10. Angad verma, Goutam Kr. Jana, Saikat Sen, Raja Chakraborty, Sandeep Sachan,

Ashutosh Mishra,Pharmacological evaluation of *saraca indica* leaves for nervous central system depressant activity in mice, *J. Pharm. Sci. Res*., 2 (6), 2010, 338-343 .

11. Dinesh kumar sekar, Gaurav Kumar, L. Karthik and K. V. Bhaskara Rao, A review on pharmacological and phytochemical properties *Aegle marmelos*(L) corr, serr., *Asia. J. Plant Sci. Res*., 1 (2), 2011 : 8-17.
12. Priyanka Chanda and Mahesh Pattabhiramaiah, Investigation of potentiality of *Aegle marmelos* as an effective antimicrobial agent, *Int. J. Appl. Res. Stud*., 3(1), 2014 : 1-12.
13. Mbaebie BO, Edeoga HO, Afolayan AJ, Phytochemical analysis and antioxidant activities of aqueous stem bark extract of *Schotia latifolia* Jacq., *Asia. Pac. J. Trop. Biomed.*, 2(2), 2012 : 118-124.
14. D. Kubmarawa, M. E. Khan, A. M. Punah, and M. Hassan, Phytochemical and antimicrobial screening of *Ficus platphylla* against human/animal pathogen, *Pac. J. Sci*. *Tech*., 10(1), 2009 : 382 – 385.
15. Johnson M., Wesely EG, Zahir Hussain MI, Selvan N, In vivo and in vitro phytochemical and antibacterial efficacy of *Baliospermum montanum* muell. Arg., *Asia. Pac. J. Trop*. *Med*., 3(2), 2010 : 894-897.
16. S. Rajan, M. Gokila, P. Jency, P. Brindha, R. K. and Sujatha, Antioxidant and phytochemical properties of *Aegle marmalos* fruit pulp, *Int. J. Curr. Pharma. Res.*, 3(2), 2011 : 65-70.
17. Vasantharaj. S, Sathiyavimal. S, Hema, Phytochemical analysis and antibacterial activity *Azadirachtaindica, Int. J. pharm. Sci. Rev. Res.*, 22(1), 2013 : 59-61.
18. Jigna Parekh, Sumitra V. Chanda, In vitro antimicrobial activity and phytochemical analysis of some Indian medicinal plants, *Turk J. Biol*. (31), 2007:53-58.

19. G. Senthilmurugan, Viji B. Vasanthe, and Kuru Suresh, Screening and antibacterial activity analysis of some important medicinal plants, *Int. J. Innov. Appl. Stud.*, 2(2), 2013 : 146-152.
20. M. S. Laths et. Al, Phytochemical investigation and antibacterial activity of *Mangifera indica* L. var. root extract, *Int. J. med. Arom. Plants*, 1(2), 2011,45-47.
21. Bcalangod, Teodora D, Vallejo, Vilma L. Patacsil, Melba, Apostol, Orlando, Laruan, Lianne Marie Victoria A., Manuel, Jayjay, Cortez, Sonny, Gutierrez, Rosemary M., Phytochemical screenining and antibacterial activity of selected medicinal plants of Bayabas, sablan, Benguet province cordiellera administrative region, Luzon Philippines, *Ind. J. Trad. Knowl*., l1 (4), 2012 : 580-585.
22. Uma B., Prabhakar K. and Rajendra S, In vitro antimicrobial activity and phytochemical analysis of *Ficus religiosa* L. *and Ficus bengalensis* L. against diarrhoeal enterotoxigenic *E. coli*, *Ethnobot. Leaflets*, 13, 2009 : 472-74.
23. M. Bharath, E. Laxmi Rama Tulasi, K. Sudhakar and M. Chinna Eswaraiah, Dalbergia sissoo-an important medicinal plant, *Int. J. Res. Pharm. and Chem*., 3(2), 2013 : 384 -388.
24. Himesh Soni, Govind Nayak, Sita Sharan Patel, Kaushelendra Mishra, Ravi Pratap Singh and Akhlesh Kumar Singhai, Pharmacognostic studies of the leaves of *Tinopora cordifolia*, *J. Pharma Herbal Form*., 1(3), 2011 : 1 - 6.
25. Koilpillai Babu, Sabesan Gokul Shankar and Sadananda Rai, Comparative pharmacognostic studies on the bark of four *Ficu*s species, *Turk J. Bot*. 34, 2010 : 215-224.
26. .M. Amin Mir, S. S. Sawhney, M. M. S. Jassal, Qualitative and quantitative analysis of phtytochemcals of Taraxacum officinale , *J. Pharm. Pharmacol.,* 2(1), 2013 : 1 - 5.
27. Rui Hai Liu, Whole grain phytochemicals and health, *J. Cereal Sci.,* 46, 2007 : 207 - 219.

28. Dhan Prakash, Samiksha Suri, Garima Upadhyay and Brahma N. Singh,Total phenol, antioxidant and free radical scavening activities of some medicinal plants, *Int. J. Food Sci. Nutri*., 58 (1), 2007 : 18 - 28.

29. Jadhao A. B., An ethnobotanical and phytochemical of some medicinal plants from Shegaon Tahshil, *Int. J. of pharm. Sci. Invent*., 2(8), 2013 : 19 - 21.

30. Ganesh N. Sharma, Susheel K. Dubey, Nitin Sati and Jyotsana Sanadya, Phytochemical screening and estimation of total phenolic content in *Aegel marmelos* seeds, *Int. J. Pharma. Clin. Res.*, 3(2), 2011 : 27 - 29.

31. G. Vinotha Pooshan and K. Sundar, Wound healing effect of various extracts of *Adhatoda vasica*, *Int. J. Pharma. Biosci*., 1(4), 2010 : 530 - 536.

32. George M. Venkataraman PR and Pandalai KM, Investigation on plant antibiotic, part IVA search for antibiotic substances in some Indian medicinal plants, *J.Sci. Ind. Res*, 1947 : 42 - 46.

33. Kaur Arvinder, Singh Satyajit, Chandra Priyanka, Suri Krishna Avtar and Ishar Mohan Paul Singh, Evaluation of antioxidant potential of stem bark extract of *Dalbergia sissoo*, *J. Pharm. Res*., 4(10), 2011 : 3439 - 3441.

34. Haslam E, Lilley TH, Cai Y, Martin R and Magnolato D.,Traditional herbal medicine: the role of polyphenols, *Plant Medica*, 55(1), 1989 : 1 - 8.

35. Shobha Borhade, Antibacterial activity phytochemical analysis of water extract of *S. cumini* and analytical study by HPLC, *Asian J. Exp. Biol. Sci* , 3(2). 2012 : 320 - 324.

36. Paarakh P. M. *Terminalia arjuna* (Roxb.) wt. and am.: A review. *Int. J. Pharmacol.* 6(5), 2010 : 515 - 534.

37. Archa Vermani, Navneet, Prabhat and Avnish Chauhan, Physico-chemical analysis of ash of some medicinal plants growing in Uttarakhand, India , Nature and Science , 8(6), 2010 : 88 - 91.

38. Amrith palisingh, Pancaksiravrksa, *Ficus* species used in ayurvedic medicine, *Ethnobot. Leaflet*, 10, 2006 : 329 - 335.

39. A. N. M. Alamgir and Kaniz fatema, Phytochemical screening of some antidysenteric medicinal plants of Bangladesh, *J. Asiat. Soc. Bangladesh Sci*, 39(2), 2013 : 139 - 146.

40. Pandith Javid Iqbal, Phytochemical screening of certain plant species of Agra city, *J. Drug Delivary Therap.*, 2(4), 2012 : 135 - 138.

41. Longaga A Otshudi, Vercruysse A and Foriers A, Contribution to the ethnobotanical, phytochemical and pharmacological studies of traditionally, used medicinal plant in the treatment of dysentery and diarrohea in Lomla area, *J. Ethnopharmacol*. 71, 2000 : 411 -423.

42. M Nagwa Ammar, Abde Nasser B Singab, Sherweit H E-Ahmady, Amira A E-Anssary, Eman G Haggag and Rania S Shabban, Phytochemical and biological studies of some polysaccharides isolated from *Aloe vera, Tamarindus,Opuntia* and *citrus, JASMR,* 5(2), 2010 :141 - 152.

43. C. Agyare, A. Y. Mahesh, S Osei-Asante, Antimicrobial activity and phytochemical studies of some medicinal plants from Ghana, *BLACPMA Noviembre DC,* 5(6), 2006 : 113 - 117.

44. Kim HP, Son KH, Chang HW, Kang SS, Anti-inflammatory plant flavonoid and cellular action mechanism, *J. Pharmacol. Sci.*, 96(3), 2004 : 229 - 245.

45. Jiang H, Zhan WQ, Liu X, Jiang SX, Antioxidant activities of extract of flavonoids compound from *Oxytropis falcate* Bunge. *Nat. Prod. Res.* 22 (18), 2008 : 1650 - 1656.

46. Warrier. PK, V.P.K. Nambiar and C. Ramankutty, Indian medicinal plant : a compendium of 500 Species, *Orients Black swan*, 1996 : 592.

47. Abdullah-Al-Emran, Farzana Ahmed, Md. Sanuwarul Kabir, Md. Mahabubur Rahaman, S.M Shahed, Investigation of antimicrobial activity of ethanolic leaf fruit extract of *T. Arjuna* against multi - drug resistance bacteria in Bangladesh, *J. Appl. Environ. Biol. Sci.*,1 (5), 2011 : 90 - 95.

48. Shiv kumar Gupta, Phytopharmacognostic investigation of *Bauhinia tomentosa* Linn., *J. Adv. Sci. Res*., 2(2) , 2011 : 1-4.

49. Manohar P., Rajesham V.V., Ramesh M., Kiran Kumar S., Prasanna kumari J., Pharmacognostical, phytochemical and antimicrobial activity of *bauhina racemosa* leaves, *Int. J. pharma. Biol*., 1(1), 2011 : 10-14.

50. Arvind kumar, Sadhana Singh, Kanhiya mahour, V. S. vihan and K. Gururaj, Phytochemical analysis of some Indigenous plant potent against ecto parasite, *Asia. J. Exp. Biol. Sci*., 2(3), 2011 : 506-509.

51. Screening selected medicinal plant for antibacterial activity against methicillin resistant *Staphylococcus aureus,*The free library by Farlex. 2009.

52. M. Sugumaran and T. Vetrichelvan, Studies on some pharmacognostic profiles of *Bauhinia purpurea* Linn. leaves, *Ethnobot. leaflet*, 12, 2008 : 461- 468.

53. S. Susmitha, K. K. Vidyamol, P. Ranganayaki and R. Vijayaragavan, Phytochemical extraction and antimicrobial properties of *azardirachta indica*, *Glo. J. pharmacol*., 7(3), 2013 : 316 - 320.

54. D.Venkatesan, C. M. Karrunakarn, S. Selva Kumar and P. T. Palani Swamy, Identification of phytochemical constituents of *Aegle marmelos* responsible for antimicroibial activity against selected pathogenic organism, *Ethnobot. leaflet*, 13, 2009 : 1362 - 72.

55. Edeoga, D. E. Okwu and B.O Mbaebie, Phytochemical constituents of some Nigerian medicinal plants, *Afr. J. Biotech.*, 4(7), 2005 : 685 - 688.

56. R. N. S. Yadav and Munin Agrawala, Phytochemical analysis of some medicinal plants, *J. Phyto.*, 3(12), 2011 : 10 -14.

57. Farhat Ali Khan, Iqbal Hussain, Shahid Farooq, Majed Ahmad, Muhammad Arif and Inayat Ur Rehman, Phytochemical screening of some pakistanian medicnal plants, *Middle-east J. Sci. Res.*, 8(3), 2011 : 575 - 578.

58. GA Ayoola, HAB Coker, SA Adesegun, AA Adepoju-Bello, K Obaweya, EC Ezennia, TO Atangbayila, Phytochemical screening and antioxidant activities of some selected medicinal plants used for malaria therapy in South Western Nigeria, *Trop. J. pharma. Res*., 7(3), 2008 : 1019 -1024.

59. Anubha Arora, Phytochemial analysis of methanolic extract of leaves of some medicinal plants, *Biological form - An International Journal,* 5 (2), 2013 : 91-93.

60. Sudipa Nag, Anirban Paul and Rituparna Dutta, Phytochemial analysis of methanbic extracts of leaves of some medicinal plants, *Int. J. of Sci. Res. Pub*., 3(4), 2013 : 1-5.

61. Yik Ling Chew**,** Elaine Wan Ling Chan**,** Pei Ling Tan**,** Yau Yan Lim**,** Johnson Stanslas**and** Joo Kheng Goh**,** Assessment of phytochemical content, polyphenolic composition, antioxidant and antibacterial activities of leguminosae medicinal plants in peninsular Malaysia, *Complement.Alter. Med.*, 11(12), 2011 : 1-10.

62. Kubmarawa D., M. E. Khan, A. M. Punah and Hassan, Phytochemical screening and antibacterial activity of extract from *Pakia clapperotonianake*ay against human pathogenic bacteria, *J. Med. plants Res*., 2(12), 2008 : 352 - 355.

63. Ates, D. A. and Erdonnul, Antimicrobial activities of various medicinal and commercial plant extract, *Turk J. Biol*, 27, 2003 : 157 - 162.

64. Sujana, Para; Sridhar, Thulasi Muneppa; Josthna, Penchalaneni; Naidu, Challagundla Varadarajulu, Antibacterial activity and phytochemical analysis of *Mentha piperita* L.-An important multipurpose medicinal plant, *Amer. J. Plant Sci.* ,4(1), 2013 : 77-83.

65. Merina Paul Das, Ankita Banerjee and Anu, Comparative study on in vitro antibacterial and antifungal lproperties of five medicinal plants of West Bengal, *Asian J. Plants Sci. Res*. 3(2), 2013 : 107 - 111.

66. Segni Ladjel, Noureddine Gherraf, Amar Zellagui, Labed Brahim AndSamir Hameurlaine, Phytochemical and antibacterial screening of some Algerian Saharian medicinal plants, *Plants Sci. Feed*, 1(10), 2011 : 179 - 182.