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A REVIEW ONANTIMICROBIAL ACTIVITY OF SOME MEDICINAL PLANT LEAVES

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ABSTRACT

Plants are the richest aidof medication of traditional structures of medicine, present day medicines, nutraceuticals, meal supplements, people's medicines, pharmaceutical intermediates and chemical entities for artificial drugs.In recent days, the importance of ayurvedic and homoeopathy medicine is increasing in world to prevent the different types of diseases because it is cost effective naturally effective medicines. Medicinal plants such as *Azadirachta indica, Adhatoda vasica, Mentha, Mangifera indica, Ocimum sanctum, Lawsonia inermis,* and *Eucalyptus*etc are most effective on human health to prevent various disease caused by some microbial (bacterial, fungal) infections.Many plant inhibiting materials had been remoted from their roots, leaves and seeds. Increasing resistance to microorganisms, in particular in latest years, has accelerated the fashioncloser tonaturalmedicines. In this review paper the antimicrobial activity of medicinal plants such as *Azadirachta indica, Ocimum sanctum* and *Lawsonia inermis* leaves is discussed and also the applications of plants is discussed.

Keywords: Medicinal plants, importance of ayurvedic, natural medicines

INTRODUCTION

Neem (*Azadirachta indica*) is a particular circle of relatives of Meliaceae and neem tree hooked up in india subtropical areas. precedingresearch on Neem leaves. It wasfound that leaves homes consist of many more medicinal efficaciously on human health **[1]**. *Azadirachta indica* (neem juice) is extra powerful medicinal comprise for diabetes and it's role of anti-diabetes homes **[2]**. Neem is said in ayurvedic, tibbi and therapeutic gadget of medicine to be useful in rheumatic disorders **[3]**. Neem leaves has useful as antibacterial at homes and used for manipulate pollution for airborne bacterial infection in environment. Neem (*Azadirachta indica*) is a traditional plant that in particular grows with inside the Indian subcontinent and has been cautioned to have several medical packages like antibacterial, antiviral, anticancer, and antidiabetic homes. The utilizationof natural drugs to deal with infections has been practiced at the grounds that historical days due to the fact of their eco-friendliness and strongfactor effects **[4]**. Neem possesses many factors which would possibly be of wonderful significance for the remedy of various diseases, and the factors moreover modulate the genetic pathways or metabolic sports activities of the host body **[5]**. Neem may moreover additionally help with inside the advent for prevention for AIDS and leaves extract may also be used via ingesting a neem tea **[6]**.

Ocimum sanctum has additionally been used as acritical pot herb in folklore practices for some of illnesses and diseases. Among the medicinal plants, fragrant herbs are wealthy supply of biologically energetic compounds which are beneficialin agriculture and medicinal drug of these, *Ocimum tenuiflorum*, additionally acknowledged as *Ocimum sanctum*, Tulsi, or Holy Basil from the own circle of relatives Lamiaceae has been defined as the "Queen of plants" and the "mommedicinal drug of nature" because of its perceived medicinal qualities. It has been one of the maximum valued and holistic herbs used over years in conventional medicinal drugs in India and nearlyeacha part of the plant has been marked to own healing properties. Many studies suggest the implement of bactericidal motion of eugenol, alpha terpinol and gamaterpine which can be the predominant issue of tulsiv ital oil towards check microorganism **[7]**. Tulsi proven powerful antimicrobial assets against A. *actinomycetem comitans*, suggesting its feasible use as powerful and affordable "adjunct" in conjunction withthe same old care withinside thecontrol of periodontal conditions. However, in additions tudies assessing the toxicity, durability, and

different exams observed via way of means of medical trials is vital to discover the capacity of Tulsi in preventing oral conditions **[8]**. Tulsi in Hindi or Tulasi in Sanskrit (holy basil in English) is a phenomenal respected culinary and medicinal fragrant herb from the own circle of relatives Lamiaceae this is indigenous to the Indian subcontinent and been used inside Ayurvedic medication extra than 3000 years. In the Ayurveda gadget tulsi is frequently known as an "Elixir of Life" for its recuperation powers and has been acknowledged to deal with many exceptional not unusual fitness conditions. In the Indian Materia Medica tulsi leaf extracts are defined for remedy of bronchitis, rheumatism, and pyrexia **[9]**. Other stated healing makes use of encompass remedy of epilepsy, bronchial allergies or dyspnea, hiccups, cough, pores and skin and hematological diseases, parasitic infections, neuralgia, headache, wounds, and inflammation **[10]**. Tulsi leaves extract also remedy for oral conditions **[11]**. The juice of the leaves has been implemented as a drop for earache **[12]**. The tea infusion has been used for remedy of gastric and hepatic disorders. The roots and stems have been additionally historically used to deal with mosquito and snake bites and for malaria **[13]**.

Henna [*Lawsonia inermis* (*L. inermis*) Linn] is thought to have medicinal properties. In past history of *L.inermis* plant, in past history founded that henna plant leaves inhibited microbial growth gram positive and gram negative both and showed antimicrobial activity of phenolic compound present 4-6% in leaves.In latest medicines have their original gene in established therapeutic plants **[14]**. The use of *L.inermis* extracts is of brilliant importance as alternative antimicrobial agent in therapeutics.Henna is a flowering plant, having a peak of five meters, natal to subtropical and tropical areas of global wide which include South Asia, Africa, oases of Sahara Dessert or even in northern areas of Australia. Leaves of henna plant are complete, sub-sessile, oviform and flat. Leaves have period of 2–three cm with 1–2 cm width. Henna shrub is pretty branched and has greyish-brown barks. Important synthetic fragment of henna are Lawsone (2-hydroxynaphthoquinone), Tannic acid, mucilage, mannite and gallic acid. Henna is thought for use as a beauty agent for dyeing hair, nails and skin **[15]**.

ANTIMICROBIAL ACTIVITY OF PLANT LEAVES:

Antimicrobial Activity of *Azadirachta indica*:

Neem has supreme Antimicrobial activity. It carries 35 organic energetic compounds. Neem leaves juice and twigs are used to easy enamel and used as a tonic and also used in Indian houses remove bugs. A

quantity of strong pharmaceutical compounds triterpenoids had been remoted from the end result and bark of neem tree. Neem extracts and its distinctparts play vitalfunction in inhibition of numerous microbes which incorporates viruses, fungi and bacteria. The extracts of methanol and hexane chloroform of *Azadirachta indica* have been decided on towards antibacterial activity on *Escherichia coli, Proteus vulgaris, Klebsiella pneumonia, Bacillus subtilis, Micrococcus luteus, Streptococcus faecalis and Enterococcus faecalis*. The methanol extract showed maximum antimicrobial activity, chloroform showed mild antimicrobial activity and chloroform showed less antimicrobial activity of *Azadirachta indica* **[16]**.

Antimicrobial Activity of *Ocimum sanctum*:

Tulsi is most strong anti-bacterial and anti-inflammatory properties that are used for sore throat, fever, respiratory disorders healing and improving heart health **[17]**. Tulsi leaves extract is anti-inflammatory, antiviral, Antipyretic activity, Antihyperlipidemic effect, Antidiabetic activity, Miscellaneous activities and loose radical scavenging capacity which additionally play a critical position in decreasing positive kind of cancerous growth. Tulsi orally administered, it exhibited hepatoprotective reactionin opposition to Paracetamol, Carbon tetrachloride and anti-tuberculosis pillsbrought about liver injury in albino rats **[18]**. Not only used tulsi herb leaves but different parts of the plant also used in therapeutic potential and are used as analgesic agents, antidiabetic, antifertility, hepatoprotective and anti-stress. Volatile oil, fixed oil also gets from the leaves of *ocimum sanctum* **[19]**.

Antimicrobial Activity of *Lawsonia inermis* :

Henna leaves also are used for fevers, as a neighborhood anesthetic, anti-inflammatory and for treating mouth ulcers. The maximum placing antimicrobial impact of henna is proven through the inhibitory past time in opposition to *P. aeruginosa*. clean and dry seeds proven antibacterial pastimein opposition to*P. aeruginosa*, our clean henna leaves proventhe best anti-*P. aeruginosa* past time **[20]**. Heena plant leaves contain antifungal and antibacterial activity and also useful in wound healing activity **[21]**.

TEST ORGANISMS

Escherichia coli:

Escherichia coli commonly colonizes the gastrointestinal tract of human toddlers inside some hours after birth. Usually, *E. coli* and its human host coexist in appropriate fitness and with mutual gain for decades. These commensal *E. coli* lines not often reason sickness besides in immune compromised hosts or in which the

everyday gastrointestinal obstacles are breached as in peritonitis. The area of interest of commensal mammalian bladder's mucous coating is made with *E. coli*. The bacterium is a quitea success competitor at this crowded site, comprising the maximum considerable facultative anaerobe of the human intestinal microflora. Despite the massive frame of literature at the genetics and body structure of this species, the mechanisms whereby *E. coli* assures this auspicious symbiosis withinside the colon are poorly characterized. One thrilling speculation shows that *E. coli* would possibly make the most its cap potential to make use of gluconate with inside the colon extra successfully than different resident species, thereby permitting it to occupy a quiteunique metabolic area of interest **[22]**. *Escherichia coli* is the maximum-studied microorganism. It is each a not unusualplace commensal inhabitant of the gastrointestinal tract and one of the maximum essential pathogens in humans. Thus, the maximum common motive of blood stream contamination and urinary tract infections (UTIs) amongst Gram-negative bacteria (GNB) is *E. coli*. Such isolates own especial virulence elements consisting of toxins, adhesins, iron-acquisition systems, polysaccharide coats and invasins that aren't found in intestinal and commensal pathogenic traces. In addition, *E. coli* are the enteric Gram-negative bacilli maximum often observed withinside the genital tract of women, inflicting vaginal and/or endocervical colonization in addition todistinct infections in pregnant women, consisting of intra-amniotic and puerperal contamination, and neonatal infections, consisting of early and overdue neonatal sepsis **[23]**. Antibiotics are a mainstay of public fitness and play a key position in enhancing the fitness and properly being of human beings everywhere in the world. However, at the same time as antibiotics werea success in restricting infectious diseases, their use has exponentially elevated main to the emergence and unfold of antibiotic resistance (AMR). GNB, including *E. coli*, have emerged as important gamers in resistance, with multidrug resistance (MDR) now being particularly common **[24]**.

***Staphylococcus aureus*:**

Staphylococcus aureus is the maximum infected of smooth tissue of body. If any person affected which contamination is at extra hazard for smooth tissue infections with *S.aureus*. Carriage of *S. aureus* withinside the anterior nares or elsewhere, that is determined in 20% to 30% of all humans, is a long-time hazard issue for growing a surgical web website online contamination with this organism. Specifically, it's far unknown if anaffected

person who has a smooth tissue contamination induced by *S. aureus* (in preference toany other pathogen) is at extra hazard for any others mooth tissue contamination (induced by *S. aureus* or any other pathogen) in the course of his or her lifetime. Among person sufferers hospitalised for a tender tissue infection, the ones inflamed with *S. aureus* (as compared with different pathogens) can be at better hazard of a next tender tissue infection, mainly with *S. aureus* **[25]**. An essential venture posed via way of means of S. *aureus* is antimicrobial resistance. Soon after the β-lactam antibiotics penicillin and methicillin had been delivered into medical practice. Over the following numerous decades, methicillin-resistant *S. aureus* (MRSA) have become a critical healthcare-related pathogen, complicating the care of post-surgical and dialysis sufferers and the chronically ill. Treatment changed into challenging, thanks to resistance to more than one antibiotic, and via way of means of the flip of the century, MRSA accounted for almost 60% of all *S. aureus* isolates recovered from medical institution extensive care units. At present, its miles projected that MRSA infections account for >100,000 hospitalizations every12 months withinside the U.S **[26]**.

CONCLUSION

This review concluded that all medicinal plants leaves is very useful for therapeutic purpose against microbial infections and all three species of herbal medicinal plants extract shows antimicrobial (zone of inhibition) activity against selected organisms *S. aureus* and *E. coli.* The *Azadirachta indica, Ocimum sanctum* and *Lawsonia inermis* are very useful for medicinal purpose without any side effects because these are natural medicinal plants. Therefore, this review concluded that these are the very emerge fully used plants so they can be used prevent the different types of diseases in future also.

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