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REVIEW ON; ANTIMICROBIAL ACTIVITY OF PLANTS IN AYURVEDA AGAINST BACTERIA

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ABSTRACT

Many plants in Ayurveda has medicinal value. Medicinal plants 'Rasayana' has played vital role in the rejuvenation of worse condition created by infection of Microorganism. Medicinal plants are the important source of potentially usefull for the development of chemotherapeutic agent (1) so plants are used as a medicine and source of new drug. The development of bacterial resistance to presently available antibiotic has necessitated the search of new antimicrobial agent.(2)
).



KEY WORDS: Plants in Ayurveda, Medicinal uses, Antimicrobial activity.

INTRODUCTION

Ayurveda is medicinal science of ancient India, which had found a very effective use of herbs to cure all types of major and minor ailments without side effects. In India medicinal plants are widely used by all sections of people both directly as folk medicine in different indigenous system of medicine like Siddha, Ayurveda and Unani. (Shrinivasan et al 2001). Extracts of plants were used for treatment of disease and this forms the basis for all Indian system of medicine. However this area is not much developed when compared to modern system of medicine mainly because of lack of scientific documentation in this field (kalimuthu et al 2010). The effect of plant extract on bacteria has been studied by large no of researchers in different parts of world. (Reddy et al 2010; Ateb & Frdo 2003)

Plants in Ayurveda with Medicinal use and antimicrobial activity :

1) *Punica granatum*:

Common Name : Pomogranate.

In Sanskrit: Dadima (12)

Medicinal uses : Heart problem, Stomach disorder, Dental care, Cancer, Osteoarthritis, Diabetes, Anaemia (13)

Part used : Leaf (2)

Extraction : With ethanol, methanol (3)

Antimicrobial activity : Against *E. coli*, *Staphylococcus aureus*, *Salmonella typhi*, *Proteus vulgaris*, *Aerobacter aerogens* (3)

2) Tridax procumbens :**Common Name :** Coat buttons (14)**In Sanskrit :** Jayanti Veda (15)**Medicinal uses :** Anticoagulant, Insect repellent, Liver disorder, Hepatoprotection, Gastritis and Heart burns (16)
For Boils, blisters and cuts (17).**Part used :** Plant Material (10)**Extraction :** With acetone, 50% ethanol, Methanol (10)**Method used :** Antibacterial test by 96 well microtitre plate (10)**Antimicrobial activity :** Against *E.coli*, *Vibrio cholera*, *S.typhimurium*, *K.pneumoniae*. (Water born bacterial pathogens) (10)**3) Azadirachta indica :****Common Name :** Neem**In Sanskrit :** Nimbaka, Pakvakrita (21)**Medicinal uses :** Antihelmintic, Antidiabetic, Contraceptive, Sedative (19)

Skin disease like eczema, Psoriasis (20)

a) Part used : Seeds (4)**Extraction :** With distilled water and Hexane (1)**Method used :** Boakye – Yiadom (1987) Agar well diffusion method. (5)**Antimicrobial activity :** Against ophthalmic infection (Bacterial strain cause eye infection) *Staphylococcus aureus*, *Staphylococcus pyogen*, *E. Coli*, *Pseudomonas aeruginosa*.**b) Part used :** Leaves (6)**Extraction :** With Methanol (1)**Method used :** Agar well Diffusion Assay.**Antimicrobial activity :** Against *Proteus vulgaris*, *Micrococcus luteus*, *E.coli* (1)**c) Part used :** Leaves (oil) (7)**Extraction :** Neem oil extraction with petroleum ether. (1)**Method used :** Agar Disc Diffusion (1)**Antimicrobial activity :** Against *Staphylococcus aureus*, *Salmonella typhi*, *E. Coli*, *Pseudomonas aeruginosa*.**4) Psidium guajava :****Common Name :** Guava (4)**In Sanskrit :** Peruka (22)**Medicinal uses :** Antispasmodic & Antibacterial properties in treatment of diarrhea and dysentery, Hypoglycaemic agent, Antioxidant, Hepatoprotection, Antiallergy, Antimicrobial, Antigenotoxic, Antiplasmodial, Cytotoxic, Cardioactive, Anticough, Antiinflammatory.**Part used :** Leaves (1)**Extraction :** With Methanol (1)**Method used :** Agar well diffusion assay. (1)**Antimicrobial activity :** Against *Staphylococcus aureus*, *Salmonella sp*, *E. Coli*,**5) Eugenia caryophyllus :****Common Name :** Clove (23)**In Sanskrit :** Lavanga (23)**Medicinal uses :**

It improves digestion by stimulating digestive enzymes.

It shows antibacterial activity against no of human pathogen.

It has chemopreventive or anticarcinogenic properties.

It contains high amount of antioxidant which are ideal for protecting the organs from effects of free radicals sopecially liver.

It is used in diabetes control.

Part used : Clove oil (11)

Antimicrobial activity : Against *Staphylococcus sp*, *Klebsiella pneumonia*, *pseudomonas aeruginosa*, *Clostridium perfringens*, *E.coli*. (11)

DISCUSSION :

From the above study it is seen that all the five plants shows the antibacterial as well as antimicrobial effect against *Staphylococcus aureus* and *E.coli*. *Staphylococcus aureus* is commonly occurring bacteria in human skin pus and *E.coli* is known as enteric pathogen. Ayurveda proved the effectivity of studied plant material against *Staphylococcus aureus* and *E .coli*. To overcome the antibiotic resistance of *Staphylococcus aureus* and *E.coli*. these plants can be studied further. Chromatographic studies, FTIR studies can show the antimicrobial agents present in above plant extract. These compounds can be purified and studied as an antibiotic.

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