

PHYTOCHEMICAL AND ANTIMICROBIAL EFFECTS OF SOME INDIGENOUS MEDICINAL PLANTS

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ABSTRACT: *Azadirachta indica*, *Aegle marmelos*, *Citrus sinensis* and *Emblica officinalis* are well known in India and its neighboring countries for more than 2000 years as the most versatile medicinal plants having a wide spectrum of biological and phytochemical activities. The use of medicinal plants in the industrialized societies has been traced to extraction and development of several drugs and chemotherapeutics from these plants as well as from traditionally used rural herbal remedies. Alkaloids were isolated from the leaves of *Azadirachta indica*, fruits of *Aegle marmelos*, peel of *Citrus sinensis*, fruits of *Emblica officinalis* to see their anti bacterial and anti fungal activities and were found very effective against the fungal isolates *Candida albicans* and *Phytophthora parasitica* and bacterial isolates *Xanthomonas axonopodis*. Presence of alkaloids was confirmed by using Mayer's reagents.

Key words: Alkaloids, antifungal and antibacterial activities.

INTRODUCTION

Alkaloids are the source of prevention of human and their foodstuffs from microorganism and fungus. In which fungi are destroyers of food stuffs and grains during storage, and converted them unfit for human by retarding their nutritive value and produce myotoxins (Marin *et al.*, 1999). More than 25% of the world cereals are contaminated with known mycotoxins and more than 300 fungal metabolites are reported to be toxic to man and animals (Abraham, Z., 1981). Medicinal plants are part and parcel of human society to combat diseases, from the dawn of civilization. *Azadirachta indica* (Neem), *Aegle marmelos* (Bael), *Citrus sinensis* (Orange), *Emblica officinalis* (Indian gooseberry) are well known in India and its neighboring countries for more than 2000 years as the most versatile medicinal plants having a wide spectrum of biological activity. The use of traditional plant and medicinal plants in most developing countries as a normative basis for the maintenance of good health widely observed. The use of medicinal plants in the industrialized societies has been traced to extraction and development of several drugs and chemotherapeutics from these plants as well as from traditionally used rural herbal remedies (UNESCO, 1998).

In our present study we could isolate alkaloids from the leaves of *Azadirachta indica*, fruits of *Aegle marmelos*, peel of *Citrus sinensis*, fruits of *Emblica officinalis* and to see their anti bacterial and anti fungal activities.

METHODS AND MATERIALS

Plant materials

The four plant materials *Azadirachta indica*, *Aegle marmelos*, *Citrus sinensis* and *Emblica officinalis* were collected, dried in shadow, coarsely powdered and were extracted.

Preparation of crude extract

Alkaloids were extracted from the collected materials using the methods of Chhimwal S.L. and Pandey I.P. 2008. 100 grams of each powdered materials were extracted for 2 hrs with methanol (98.9%) in soxhlet apparatus. The chloroform extracts were filtered and evaporated under reduced pressure using rota-vapor.

Identification test

The presence of alkaloids in the extracted samples was confirmed by adding a drop of Mayer's reagent and a positive result was confirmed by the appearance of yellowish precipitate (Siddiqui and Ali, 1997).

Testing for anti bacterial activities

Freshly prepared 72 hours old fungal isolates (*Candida albicans* and *Phytophthora parasitica*) and 36 hours old broth of bacterial isolates *Xanthomonas axonopodis* were taken and about 0.1 ml of each isolates were evenly spread over the PDA and NAM media respectively using L-shaped sterilized glass spreader separately under aseptic condition. Paper discs were dipped on the alkaloid extracts and were placed on the culture plates and were incubated for 72 hrs and 36 hrs respectively at 32°C. After the incubation period, the zone of inhibitions was measured in mm.

RESULTS

All the alkaloids extracts were found effective against the fungal isolates *Candida albicans* and *Phytophthora parasitica* and the bacterial isolates *Xanthomonas axonopodis* and shows zone of inhibition, except the alkaloids isolated from *Azadirachta indica* shows no effect against *Candida albicans* and the results were shown in table-1.

Table 1: Antimicrobial effect of the extracted alkaloids

Source of alkaloids	Candida Albicans (in diameter)	Phytophthora parasitica (in diameter)	Xanthomonas axonopodis (in diameter)
Azadirachta indica (Neem)	00 mm	18 mm	05 mm
Aegle marmelos (Bael)	20 mm	16 mm	03 mm
Citrus reticulate (Orange)	15 mm	17 mm	00 mm
Emblica officinalis (Indian Gooseberry)	5 mm	20 mm	06 mm

CONCLUSION

Our study has shown the effect of alkaloids extracted from some of the traditionally used medicinal plants in India and found very effective against some of the bacterial and fungal isolates. Among all the elements found in the plants, alkaloids are the most powerful as well as very effective. Hence, it is little surprising that the alkaloids have been researched and examined the most by the modern day scientists. The strength or effectiveness of the alkaloids commonly includes everything or all substances that are poisonous in the plants. Therefore, it would be right to state that the exploits of any kind of alkaloids on the human body is naturally traumatic and painful.

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