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ANTIFUNGAL ACTIVITIES OF *VITEX NEGUNDO* LINN.

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Abstract

In vitro antifungal activity of fruits of *Vitexs negundo* Linn., was examined against 5 common fungal strains, C*andida albicans*, C*andida glabrata, Aspergillus flavus, Microsporum canis* and F*usarium solani.* Ethanol extract of fruit seeds showed significant activity against *Fusarium solani* and moderate response against *Microsporum canis* with no effect on *Candida albicans.*

Introduction

Vitex negundo Linn., of the family Verbenaceae is a large family of herb, shrubs and trees comprising of about 75 genera and nearly 2500 species (Nasir & Ali 1974; Sastari, 1950) *Vitex negundo* Linn., (Jafri,1966) is distributed in east Asia, south west China, throughout India and cultivated in Pakistan (Usman Ghani Khan, 2007; Khare, 2007; Cook , 1903). Every part of this plant is valuable in medicine and various preparation of plant have been mentioned in indigenous system of medicine for various skin diseases (Amann, 1975), antibacterial (Kustrak, 1987) anti inflammatory, anti androgenic (Bhargave, 1980). Different part of *Vitex negundo* Linn., have been used in traditional Indian medicine as nervine sedative (Perry, 1980) are of high value as constituents of Ayurvedic preparations such as *Vishagarbha thaila* is widely used to treat rheumatism in India (Jayaweera, 1980; Anon, 1992). The fresh aromatic leaves are reportedly useful in rheumatism and to relieve pain (Nadkarni, 1976). It is widely used in Chinese herbal medicine. It is second most important treatment for chronic bronchitis and cold. The leaves of plant are astringent, febrifuge, sedative, tonic and vermifuge (Horowitz, 1966). Chloroform extract of defatted seed of V*itex negundo* Linn., showed anti-inflammatory activity (Gupta, 1973). It also possess potent mosquito repelling activity *Aedes aegypti* (Asaka, 1973), anti-tumor activity (Horwitz, 1966). It has hepato protective action against carbon tetra chloride which induces liver damage (Avadhoat, 1991) and has analgesic activity (Gupta, 1999). The present study was under taken to evaluable anti fungal activity of the fruits of *Vitex negundo* Linn.

Material and Methods

Plant material: *Vitex negundo* Linn., dried fruits of medicinal plant were purchased from herbal market at Karachi, during the month of April 2004. The material was botanically identified and confirmed by Porf. Dr. Ghazala H. Rizwani, Chairperson of Department of Pharmacognosy, Faculty of Pharmacy, University of Karachi, Karachi, A voucher no 013 was deposited in the museum of Herbal Medicine, Department of Pharmacognosy, Faculty of Pharmacy, University of Karachi. The dried plant fruits were washed with clean distilled water, dried and ground into coarse powder. The powdered fruits (seeds)

were percolated in absolute ethanol (Merck) at room temperature for 15 days. The percolate was filtered and evaporated by using rotary evaporator (Eyela Japan). The extract was dried in lyophilizer (Eyel, Japan) and the extract was taken for assay.

Antifungal study: Antifungal activity for screening antifungal agent in the material was used in agar dilution method. Miconazole and Amphotericin B were used as standard drugs and Sabouraud dextrose agar was employed as medium. *In vitro* screening of antifungal activity was carried out against 5 different fungal strains. *Candida ablicans*, C. g*labarata*, *Aspergillus flavus*, *Microsporum canis* and *Fusarium solani.* The culture of organisms was maintained on Sabouraud dextrose agar. The broth was incubated at 37^{o}C for 24 hours. Inoculum was prepared by dilution of 24 hours old culture in saline. A dilution of 1:100 was used in the test, prepared in distilled water. The Petri plates of SDA were prepared and 0.1 ml of diluted culture was poured on each plate. The plate, were dried for 30 minutes at 37^{o}C Well were dug in the media and test sample were taken in single concentration in DMSO (Merck) (400Ug/ml) in their well ethanol 50% with water was used as control in next well. Miconazole and Amphotericin B were used as standards in next well. Size of well was 6mm in diameter. The plates were incubated for 24 hours at 37^{o}C. The zone of inhibition of fungal growth was measured and compared with standard drugs. Each experiment was performed in triplicate; their mean of linear growth of zone of inhibition was recorded and calculated as follows: (Alves *et al*., 2000; Janaki *et al*., 1998).

$$\% \text{ inhibition of fungal growth} = \frac{\text{100-Linear growth in test (mm)}}{\text{Linear growth in control (mm)}} \text{ x100 test (mm)}$$

Results and Discussion

Crude (EtoH) extract of fruits (seeds) of *Vitex negundo* Linn, showed excellent results against *Fusarium solani* showed (90%) which is almost equivalent to the reference drug while moderate activity was found against *Microsporum canis* (60%). *Candida glabrata* and *Asperillus flavus* strains were found ineffective against the extract of plant which showed insignificant antimycotic activity. There does not appear to be any previous report on the antifungal activity of *Vitex negundo* Linn. (Fruits). The knowledge of extent and mode of inhibition of specific compounds which are present in plant extracts, may contribute to the successful application of such natural compounds for treatment of infection disorder like fungal and bacterial diseases. The present status of medicinal plants and their products provide opportunity for the developing countries to benefit from the emerging marks as the developing countries possess most biodiversity of medicinal plants. Consideration of such problem with plants is also very important for availing the total beneficial effects of herbal drugs according to their relative components in our research. It is concluded that in co ordinance of the chemical literature finding resistant strains of organism plant biodiversity may lead to unexpected research findings.

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