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Antimicrobial Activity an Antifungal Activity of Different Solvent Fruit Extract Terminilia Catappa

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ABSTRACT

The plant extracts contain several chemical compounds that are responsible for biological activities. The selected medicinal plant species showed several biological activities like antioxidant, antimicrobial, anticandidal, antidiabetic, antifungal, and antidiarrheal activities and the plant is used traditionally for the treatment of different diseases. The fruits extracts were studied qualitatively to ascertain the presence of phytochemicals such as phenols, alkaloids, terpenoids, saponins, flavonoids, tannins, carbohydrates, glycosides, oils, proteins, resins and amino acids by adopting standard methods. In this review study antibacterial and antifungal activity of fruits extracts of petroleum ether extract and methanol extracts was not study.Our aim to study the antimicrobial activity an antifungal activity of different solvent fruit extract.

Keyword: Terminilia Catappa, Antibacterial, Antifungal Activity

Introduction

Terminalia catappa has corky, light fruit that are dispersed by water. The seed within the fruit is edible when fully ripe, tasting almost like almond. As the tree gets older, its crown becomes more flattened to form a spreading, vase shape. Its branches are distinctively arranged in tiers. The leaves are large, ovoid, glossy dark green, and leathery, measuring 15–25 cm (5.9–9.8 in) long and 10–14 cm (3.9–5.5 in) broad. They are deciduous in the dry season, turning pinkish-reddish or yellow-brown before falling due to pigments such violaxanthin, lutein, and zeaxanthin.

The trees are monoecious, meaning they have separate male and female flowers. Both have a diameter of 1 cm (0.39 in), are white to greenish in colour, and have no petals; they grow on axillary or terminal spikes. The fruit is a drupe with a single seed that is 5–7 cm (2.0–2.8 in) long and 3–5.5 cm (1.2–2.2 in) wide, green at first, then yellow, and finally red when ripe. Pollen grains are 30 microns in size. The species epithet is based on its Malay name *Ketapang*.[1] [2] seed - raw or cooked [3 , 4]. The almond-flavored seeds can be eaten out of hand or roasted [5]

.They can be chopped and added to cookies, bread mixes, dessert fillings, sweets, soups and stews [4]. The seed contains about 50% oil[5]. The seed is 3 - 4 cm long, 3 - 5 mm thick and enclosed in a thick shell that is difficult to crack [5 , 6]. The seeds are a rich source of zinc [7]. The seeds yield 38 - 54% of a colourless, bland tasting yellow semi-drying oil that is used in cooking [3,4]. Rather similar to almond oil, but less prone to become rancid[8]. The fruits have a tender skin and a thin layer of subacid juicy flesh [4]. It is often fibrous and not very tasty in spite of the pleasant smell [5]. The sweetish, fibrous flesh is palatable when very young, and is usually liked by children.

The plant extracts contain several chemical compounds that are responsible for biological activities. The selected medicinal plant species showed several biological activities like antioxidant, antimicrobial, anticandidal, antidiabetic, antifungal, and antidiarrheal activities [9,10] and the plant is used traditionally for the treatment of different diseases. The use of medicinal plants to cure specific diseases has been in practice since ancient times. Ayurveda, Siddha and Unani systems of medicines have been in existence in India for several centuries. These systems of medicine fulfill the need of nearly seventy percent of the human population residing in the villages. New drugs from plant origin with scientific validation are boon to mankind to cure various microbial diseases. The investigations on the efficacy of plant-based drugs have been paid immense attention because of their very less side effects, cheap and easy availability [11]. According to the WHO, approximately 80% of the world population rely on plants or derived products for their treatment [12]. Medicinal plants are considered as important sources of new chemical substances with potential therapeutic effects [13].

Antimicrobial activity

Staphylococcus aureus, Proteus mirabilis, Pseudomonas aeruginosa, Klebsiella pneumoniae, and Salmonella paratyphi A were the microbes employed in the study. Candida albicans, Aspergillus niger, Aspergillus flavus, and Aspergillus fumigatus were the fungal strains employed in the study. All of these microbial isolates were subcultured and tested for antibacterial activity using individual leaf extracts. Minimum Inhibitory Concentration (MIC) is a term used to describe the amount of (MIC) Antibacterial activity in vitro the antibacterial activity of aqueous, ethanol, methanol, and petroleum ether extracts from the leaves was tested against the selected pathogenic microbial strains. Muller-Hinton agar was used for the agar dilution procedure (Hi-Media). Each microbe was suspended and applied to plates containing serially diluted chemicals to be evaluated, which were then incubated for 24

hours at 37 degrees Celsius. The chemicals were evaluated at 100, 250, and 500 l concentrations. The reference standard was chloramphenicol. The inhibitory zone that developed around the discs was measured and documented in millimetre. diameter [14]

Antifungal activity

Antifungal activity in vitro Using the agar diffusion method with Saburoud's dextrose agar (HiMedia) medium, the leaves' extracts of aqueous, ethanol, methanol, and petroleum ether were investigated for their in vitro antifungal activity against the selected pathogenic fungi. Each fungal pathogen's suspension was produced and placed to agar plates with serially diluted chemicals to be tested, then incubated for 72 hours at 26 degrees Celsius. The chemicals were evaluated at three different concentrations: 100, 250, and 500 l. As a reference standard, nystatin was used. The inhibitory zone that formed around the discs was measured and reported in millimetres diameter [15]. All these experiments were performed in triplicates. The inhibition zone data were expressed as mean ± standard error.

CONCLUSION:

Fruit‖ extracts‖ of‖ T. catappa used in the present investigation contain numerous bioactive compounds that are responsible for their antimicrobial properties. The extracts have shown dose dependent as well as dose independent growth inhibition against different selected bacterial and fungal strains which can be justified the use of this plant in traditional medicine for the treatment of infections.

REFRENCE

1.Stuhlmann, Franz (1909). Deutsch Ost Afrika. Band X. Beitrage zu Naturgeschichte von Ostafrika. Berlin: Dietrich Reimer. p. 122.

2. Hynnersley, C.W.S. (1913). Noctes orientales. Being a selection of essays read before the Straits Philosophical Society between years 1893 and 1910 (Criticism). Singapore. Kelly and Walsh. p. 183.

3. Uphof. J. C. Th. *Dictionary of Economic Plants.* Weinheim 1959 An excellent and very comprehensive guide but it only gives very short descriptions of the uses without any details of how to utilize the plants. Not for the casual reader

4. PDR for Herbal Medicines PDR (Physicians' Desk Reference)Staff Fourth Edition Thomson 2007 1563636786

4.a Cornucopia II Author:Facciola. S.Publisher:Kampong Publications, California.Year: 1998ISBN: 09628087-2-5 The second edition of an excellent guide to the edible uses of plants, though it does not give any details of cultivation etc.

4.b Traditional Herbal Medicines Karalliedde. L. and Gawarammana. I. A guide to the safer use of herbal medicines. Hammersmith Press, London 2008,978-1-905140-04-6

5. Howes. F. N. Nuts. Faber 1948 . - Edible Nuts. Non-Wood Forest Products, Handbook 5 Wickens G.E.

Website http://www.fao.org/docrep/ FAO, Rome. Year1995 ISBN92-5-103748-5

6- Online Guide to Chek Jawa Websitehttp://www.wildsingapore.com/chekjawa/index.html

7 - Flora Malesiana Series 1 Various Website http://www.archive.org Edible Forest Gardens: Design and Practice v2 David Jacke Chelsea Green 2006

8. Hussain J, Rehman NU, Al-Harrasi A, Ali L, Khan AL, Albroumi MA et al. Essential oil composition and nutrient analysis of selected medicinal plants in Sultanate of Oman. Asian Pac J Trop Dis 2013;3(6):421–8 10. Rani MS, Pippalla RS, Mohan K. Dodonaea viscose Linn an overview. Asian J Pharm Res Health Care2009;1(1):97– 112.

9. Owolabi J, Omogbai EKI, Obasuyi O. Antifungal and antibacterial activities of the ethanolic and aqueous extract of Kigelia africana (Bignoniaceae) stem bark. Afr.J. Biotechnol2007; 6: 882-885.

10. World Health Organization. Summary of WHO guidelines for assessment of herbal medicines. Herbal Gram 1993; 28: 13-14.

11. Blumenthal M. Herbal medicines: expanded commission E monographys .Boston: Integrative Medicine Communications 2000; 419-23.Communications 2000; 419-23.

12. Lin CC, Chen YL, Lin JM. Evaluation of the antioxidant and hepatoprotective activity of Terminalia catappa. Am J Chin Med 1997; 25:153-161.

13. Masuda T, Yonemori S, Oyama Y. Evaluation of the antioxidant activity of environmental plants: activity of the leaf extracts from seashore plants.J Agric Food Chem 1999; 47: 1749-54

14. Lin CC, Hsu YF, Lin TC. Effects of punicalagin and punicalin on carrageen an-induced inflammation in rats. Am J Chin Med 1999; 27: 371-376

15. Chen PS, Li JH, Liu TY. Folk medicine Terminalia catappa and its major tannin component, punicalagin, are effective against bleomycin-induced genotoxicity in Chinese hamster ovary cells. Cancer Lett 2000;152: 115-22.

16.. Fan YM, Xu LZ, Gao J. Phytochemical and anti-inflammatory studies on Terminalia catappa. Fitoterapia 2004;75: 253-60MMinimum