

Evaluation of Antibacterial and Antifungal Activity of *Moringa Concanensis*

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ABSTRACT

In today's scenario, fungal and bacterial infections are one of the most challenging pestilential diseases for the health-care professional which is increasing with a very high rate in the growing population, especially among the immune compromised people. The present work involved the study to extract active principles of *Moringa concanensis* and perform antibacterial and antifungal activity for various extracts. The leaves were dried powdered unexpected using solvents petroleum ether, chloroform, ethanol and water. Chemical tests were performed to ascertain presence of various classes of phyto-constituents like alkaloids, glycosides, saponins, carbohydrates, proteins, amino acids tannins, flavonoids and phenolic substances. All four extracts showed the presence of various

phytochemicals responsible for multiple pharmacological activities. The extracts were reconstituted using 1% aqueous solution of carboxy methyl cellulose and were tested for antibacterial and antifungal activity against six microorganisms, namely *Bacillus subtilis*, *Enterobacter aerogenes*, *Bacillus cereus*, *Aspergillus Flavus*, *Aspergillus Niger* and *Helminthosporium*, using well diffusion method. The results of the activity are promising with chloroform extract showing highest inhibitory activity against most of the organisms. All the extracts were able to demonstrate significant activity compared to control inhibition of microorganisms tested and hold key to discover lead molecules after further scientific investigation.

KEYWORDS: Antibacterial; Antifungal; *Moringa concanensis*; Phytoconstituents; Immunocompromised.

Introduction

Herbal plants are widely used as folk medicine to treat large number of diseases (Sachan et al., 2020). Herbal drugs play an important role in health care program especially in developing countries (Das et al., 2016). Herbal medicinal drug may be single active constituent or entire herb source is considered as medicinal product (Sachanamd Kumar, 2015). Bio molecules in the plants play a crucial role in health maintenance and promotion (Sachan et al., 2018). Now-a-days, individuals highly depend on allopathic medicines rather than the ayurvedic, whereas in the primal days people depend on natural remedies for the treatment of different diseases.

Herbal medicines also referred as phytomedicines allude to the utilization of any plants, roots, flowers, seeds, bark, and leaves for therapeutic purposes. These are standardized herbal complex mixtures of at least one plant which are utilized in many nations for the cure of different diseases. There are various herbal products accessible that claim to treat an extensive variety of issues from sorrow to cold and flu.

Often these are part of traditional medicine and often these are not evaluated using pharmacological principles

and experimental model. Although there is claim that other medicines are completely safe still there are chances of them showing unwarranted effect and is also needed to be evaluated. It does leave a lot of gap between the knowledge we have from traditional systems of medicine and its correlation with the modern medicine (Rao et al., 2020).

Moringa species is an easily and fastly developing soft wood tree and it reaches nearly the maximum height of 12m and is aboriginal to the Himalayan foothills. The bioactive compounds of *Moringa* leaves are grouped as vitamins, carotenoids, polyphenols, phenolic acids, flavonoids, alkaloids, glucosinolates, isothiocyanates, tannins, saponins, oxalates and phytates (Leone et al., 2015).

The foliage, flowers and immature pods (fruits) of numerous commercially grown Indian cultivars of *Moringa* have been characterized by the content of carotenoids. All-E-lutein is the major carotenoid in foliage and immature pods (fruits), accounting for 53.6 and 52.0% of the total carotenoids respectively. Immature pods and flowers are characterized by a higher content of total monounsaturated fatty acids (MUFAs, 16–30%) and are low in PUFAs (34–47%) compared to the leaves (Abarikwn et al., 2017).