Antibacterial Activity Of Aqueous And Methanol Extracts Of Adenanthera Pavonina Against Human Pathogenic Bacteria

Anusha .N, Aruna .N, Anushia .C

Abstract: Fungi, bacteria, viruses, and parasites are causing infectious diseases to humans and animals. Due to the major health problems researchers are revealed to medicines instead of synthetics. Synthetics medicines are creating major environmental and also give side effects. Plants are the profuse sources of antibiotics without any side effects. Since ancient times, plants are used not only for food purposes moreover medicinal purpose especially antibiotics for bacterial and parasitic infections. These plant material seeds, roots, leaves, stem, and some plant flowers are used for treating the infections of Typhoid, Malaria, and Dengue.

Keywords: Antibacterial properties, Antibiotics, Medicinal plants, Pharmaceuticals.

1. INTRODUCTION

Phenolic compounds are the essentials for bioactive constituents and to produce immunological action of antibiotics. Adenanthera pavonina is a Plantae, order from Fabales, a family is Fabaceae and the genus is Adenanthera having a great potential benefit against the pathogens. In the view of the traditional background, Adenanthera pavonina behaves towards swelling, viral infections, inflammation, the cardiac disease for pregnant women and many more. Adenanthera pavonina has o- acetylethanolamine and 1- octacosanol (natural aliphatic (, ampelopsin, butein (flavonoids), beta-sitosterol, and 1H-imidazole for alkaloids. The remarkable lesions of liver and kidney could be cured by Fabaceae family seeds. As a consequence, this article researched the antibacterial activity of Adenanthera pavonina methanol and aqueous extract of seeds antagonistic for the bacterial pathogens of Escherichia coli, Bacillus subtilis, Pseudomonas aeruginosa, and Staphylococcus aureus.

2. AIM

To identify the seeds of A. pavonina . To appraise the antibacterial activity of Adenanthera pavonina aqueous and methanol extract againt the pathogenic bacteria obtained from hospital wastes.

3. REVIEW OF LITERATURE

Vitextrifolia aqueous extract was notable antibacterial activity and inhibit the Gram positive type bacterial [1].

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Antibacterial activity of neemextracts against infections causing bacterial pathogens. It showed the better inhibitory activity against various Gram negative bacteria such us Escherichia coli, Pseudomonas aeruginosa, Salmonella typhi, Staphylococcus aureus, and Klebsiella pneumonia [2].

4. MATERIALS AND METHODS

4.1 Plant material

The seeds of A. pavonina were collected from Chennai. The seed coat was removes manually (dried seeds). Kernel was finely powder usinga hand mixer. Kept it in freezer and used for further work.

4.2 Aqueous extract of A. pavonina

1. 10.5g of powder was dissolved in 100 ml of distilled water and it was centrifuged at 7000 rpm for 15 minutes and the supernatant was removed. Then the filtrate was lyophilized stored in afreezer (-18^{o}C).
2. 250 mg of lyophilized powder was dissolved in 2.5 ml of RPMI medium.

4.3 Methanol extract of Adenanthera pavonina

1. 30g of kernel powder was taken in cone and placed into the Soxhlet apparatus.
2. 500 ml of methanol was taken in the round bottom flask attached the apparatus.
3. The temperature is gradually increased to the reach 65-80^{o}C.
4. The vaporized methanol turned into liquid and falls into the bottom flask.
5. 5.69g of methanol residue was collected.

4.4 Antimicrobial activity

The broth culture was prepared for test samples and human pathogens.The broth was incubated overnight.The nutrient agar plates were prepared and named properly.The standard antibiotic plates were prepared and named as duplicate plates.The plated were allowed to solidify.After solidification, the human pathogens were inoculated by using the cotton swab method.Prepare well by using

micropipette tips.The test samples were added to the well as concentration about 150µl, 100µl, 50µl.Place the plates in an incubator for 24 hours.Observed the plates and note the zone formation [3].

5. RESULTS

Fig.1. *Image of Adenanthera pavonina*

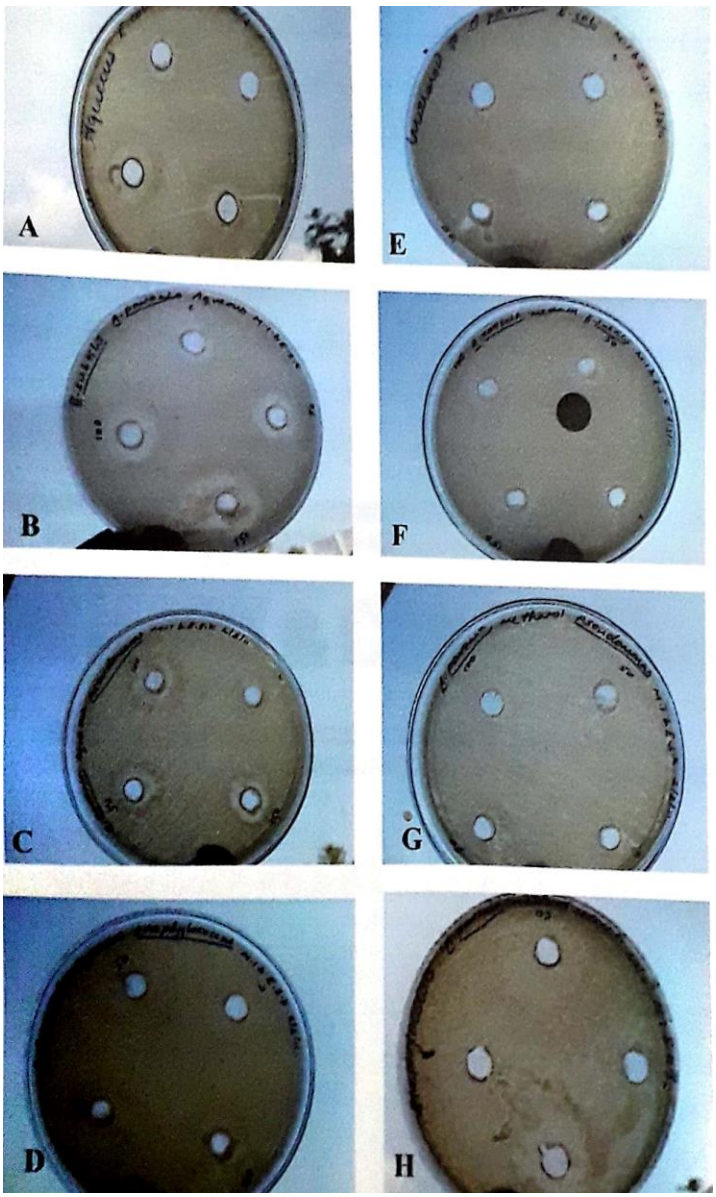

Fig.2*. Antibacterial activity of aqueous and methanol extracts of Adenathera pavonina*

A: Aqueous extract of Adenathera pavonina on E.coli.

B: Aqueous extract of Adenathera pavonina on B. subtilis.

C: Aqueous extract of Adenathera pavonina on P. aeruginosa.

D: Aqueous extract of Adenathera pavonina on S. aureus.

E: Methanol extract of Adenathera pavonina on E.coli.

F: Methanol extract of Adenathera pavonina on B. subtilis.

G: Methanol extract of Adenathera pavonina on P. aeruginosa.

H: Methanol extract of Adenathera pavonina on S. aureus.

6. SUMMARY AND CONCLUSION

Adenanthera pavonina have the antibacterial activity against the tested bacterial species which are human pathogens Escherichia coli, Pseudomonas aeruginosa, Staphylococcus aureus, and Klebsiella pneumonia(both aqueous and methanol extracts). Even in the low concentration its work to inhibit the Gram negative bacteria. The above results are indicated that the Adenanthera pavonina have suppressed the pathogenic bacterial strains. On the conclusion of this research work designated Adenanthera pavonina have ability to destroy the bacterial spores. The advantages of this plant are environmental friendly, more targeted, side effect less, easily available plant.

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