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Phyto Chemical Screening and Anti-Microbial Activity of Musa Paradisiaca-Fruit Peel

KEYWORDS: Musa paradisiaca, Anti-microbial activity.

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ABSTRACT *Musa paradisiaca commonly known as banana occurs throughout the tropics and subtropics. It is obtained from dried ripe and unripe fruits of musaparadisiaca belongs to the family musaceae. In India it is found in Andhra Pradesh, Assam, Bihar, Gujarat, kerala and Tamilnadu. It has been distributed as a medicinal plant and it is very popular throughout Africa and Asia as a remedy for skin diseases, peptic ulcers, diarrhea, gonorrhea, diabetes, headache, irregular menstrual cycle, anemia, blood pressure, depression, constipation, morning sickness. In the present study the dried fruit peel of musa paradisiaca was subjected for successive solvent extraction by using different solvents like chloroform, pet.ether, ethylacetate, methanol and water. The obtained extracts are subjected for Phyto chemical screening and Anti-microbial activity. The study was concluded that the methanol extract shows more significant activity when compared to the other extracts. Here gentamycin is used as a standard.*

Introduction-
As the herbal drugs contain many chemical compounds, it is essential to separate out those compounds which are responsible for therapeutic effect are called as active constituents. There are numbers of examples (or) galenical preparations of the drugs differ to some extent from that of its active constituents of the crude drugs, which can enhance or retard the desired action. The use of isolated active constituents is obvious since these compounds are having a fixed and definite physiological effect. There are so many active constituents still unknown. So isolating and using the compounds in formulations will potentiate the activity.

Musa species are native to tropical South and Southeast Asia and are likely to have been first domesticated in Papua New Guinea. They are grown in at least 107 countries, primarily for their fruit and to a lesser extent to make fiber, banana wine and as ornamental plants.

Banana plants may grow with varying degrees of success in diverse climatic conditions, but commercially banana plantations are primarily found in equatorial regions, in banana exporting countries. The four leading banana export countries worldwide are Ecuador, Costa Rica, Philippines, and Colombia. Ecuador provides more than 33% of the global banana export. In 2004, banana producing countries totaled 130. Production, as well as exports and imports of bananas. 75% of total banana production in 2004 was generated in 10 counties.

Materials and Methods: (1). Collection of the plant: The plant **MUSA PARADISIACA-FRUIT PEEL** was collected from local regions and identified by local flora. The peels were separated from the fruit and dried under shade. After through day, it was powdered and used for our studies. The powder was used for the extraction.

(2). Extraction: The peel powder is subjected for successive solvent extraction by using different solvents like chloroform, pet.ether, ethylacetate, methanol and water**.** Continuous hot percolation process or Soxhiet extraction. The drug to be extracted is packed in a paper cylinder made from a filter paper and it is placed in the body of soxhiet extractor. The solvent is placed in the flask.

Packing procedure-The powdered peel was weighed to about 50 gm and added to round bottomed flask. Then 350 ml of solvent was added to it and subjected to extraction for about 24 hours. The extract collected was further distilled to separate methanol from the crude extract. The collected extract was further concentrated by heating gently on a heating mantle. Finally, thick jelly like extract was obtained.

(3). Elemental analysis: The extracts were subjected to elemental analysis such as ash value, extractive value, presence of chemical constituents etc..,

Microbiological study: Methods used for Anti-Microbial activity: For the in vitro evaluation of Anti-microbial activity, diffusion methods like Filter paper disc method (Benson 1990) was used in the present study.

(3a). Diffusion methods: In the diffusion method the extract was held. In a reservoir from which it diffused into the medium. The zone of inhibition was observed and recorded. This can be done by two methods. Viz filter paper and cup plate.

(3b). Filter paper disc method: In this method sterile 6 mm Whatmann no: 1 filter paper discs impregnated with the extract under assay were placed on the agar plates. The extract slowly diffuses into the medium containing the organisms. After incubation for 24 hours at 27 ^{0C} for bacteria and 48 hours at 28^{0C} for fungi, the diameters of the zone of inhibition surrounding the filter paper discs were measured.

Test organism: The screenings of the Anti-microbial activity of crude extract Plumbago zeylanica were carried out individually on active cultures of Bacillus subtilis.

Process of Anti-Microbial activity: The culture of bacteria (B.subtilis) grown overnight at 37 ^{0C} were used for testing the anti-bacterial activity from different extracts of musa paradisiaca. The anti-bacterial activity was checked by disc diffusion method. In this technique meat extract nutrient medium containing 1.5% agar was adjusted to pH 7.0 and it was distributed in 40 ml quantity in conical flask with cotton plug and it was kept for sterilization. The bacterial culture was then added aseptically to the agar medium mixed well and poured immediately in sterilized Petri plates. After hardening the discs were prepared and dipped in different concentrations (5, 10, 15 microgram per ml) of Plumbago zeylanica root

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extracts and were placed on agar medium. The plates were incubated at 37^{0C} and observations were made after 24 to 72 hours and measure the diameters or the zone of inhibition.

Results: (a). Physical Study: Determination of loss on drying of musa paradisiaca 42% respectively. Ash value of peel of musa paradisiaca shows 40% respectively. Extractive value of peel of musa paradisiaca on methanol is 0.98g.

(b). Phytochemical study: The peel of musa paradisiaca shows alkalides, volatile oils and Glycosides.

(c). Anti-microbial Activity:
Anti -microbial activity of Musaparadisiaca

Extracts	Anti-microbial activity zone of inhibition in mm		
	Conc I	Conc II	Conc III
Chloroform extract of peel	0.7 mm	0.9 mm	1.0 mm
Ethyl acetate extract of peel	0.8 mm	1.0 mm	1.2 mm
Methanol extract of peel	1.1 mm	1.2 mm	1.4 mm
Gentamycin	0.8 mm	1.8 mm	2.0 mm

Discussion: From the results we have concluded that the methanolic extract of Pumbago Zeylanica roots has significant Anti-bacterial activity. When compared with the other extracts of stem and leaf.

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