

Research Article

Selective Antimicrobial Properties of *Phyllanthus acidus* Leaf Extract against *Escherichia Coli*, *Aspergillus flavus* and *Aspergillus niger*

Jain Bhavana P.*, Jadhav Rupali Y., Lohar Priyanka S.,
SG. Patil and SP. Pawar

P.S.G.V.P. Mandal's College of Pharmacy, Shahada, Dist – Nandurbar,
Maharashtra, India.

ABSTRACT

Various medicinal plants have been used for years in daily life to treat disease all over the world. In this project study focus the antimicrobial activity of *phyllanthus acidus* leaf extracts obtained from the village of lonkheda. The antibacterial and antifungal activities of *Phyllanthus acidus* was investigated against *Staphylococcus aureus* (gram+ve), *Escherichia coli* (gram-ve) and *Aspergillusnigra*, *Asparagillusflavus* using the Well diffusion method. The solvent type extracts were obtained by extractions with water and n- butanol respectively. The solvents were used as control whereas ampicillin were used as references for bacteria and fungal species respectively. The solvents had the effect on the microorganisms *Escherichia coli* and *Staphylococcus aureus* and had no effect on fungi.(*Asperagillusflavus* and *Aspergillusniger*) whereas ampicillin inhibited microbial growth. This study suggests that the n-butanol extracts of *Phyllanthusacidus*, can be used as herbal medicines in the control of *Escherichiacoli* and *Staphylococcus aureus* following clinical trials.

Keywords: Antimicrobial activity, *Phyllanthus acidus*, Bacteria, Fungi.

INTRODUCTION

Nature has been a source of medicinal agents for thousands of years and an impressive number of modern drugs have been isolated from natural source. Interest towards traditional natural products has increased on a larger scale. In the traditional system of Ayurvedic treatment, a medicine consisting of plant products either single or in combination with others are considered to be less toxic and free from side effects when compared to synthetic drugs. *Phyllanthus acidus* is commonly known as gooseberry. It is quite a common tree found in the tropics and belongs to the plant family euphorbiaceae. This project discusses the antimicrobiological (antibacterial and antifungal) activity of leaves of *Phyllanthus acidus* also known as gooseberry. and obtain from the village of lonkheda and its possible use as cream / medicine. Its antimicrobial properties were investigated against *Escherichia coli* (gram-ve), *Staphylococcus aureus* (gram+ve), *Aspergillus flavus* and *Aspergillus niger*. By using Well diffusion method. An antimicrobial is a compound that kills or inhibits the growth

of microbes such as bacteria (antibacterial activity), fungi (antifungal activity), viruses (antiviral activity) or parasites (antiparasitic activity).

METHOD OF EXTRACTION

Leaves of *Phyllanthus. Acidus* were collected in village of lonkheda. the 250 gm of Fresh leaves were simmered at 60°C for 3 h in 500ml water. The clear solution of the extract was simmered at 50°C to reduce its volume to 50%, followed by partition extraction with water-saturated *n*-butanol. The *n*-butanol phase was collected and then carried out further microbial assay.

Serial no.	Sample Code	E.coli	S.aureus
1	Standard	24.65	26.35
2	n-Butanol	10.27	11.47
3	Undiluted sample	18.22	10.83
4	0.1% diluted sample	12.42	10.56
5	1.0% diluted sample	9.37	10.38
6	1.5% diluted sample	10.63	10.85
7	2.0% diluted sample	11.55	9.75

Result For Bacteria For Fungi

Serial no.	Sample Code	A.flavus	A.niger
1	Standard	-	-
2	n-Butanol	-	-
3	Undiluted Sample	-	-
4	0.1% diluted sample	-	-
5	1.0% diluted sample	-	-
6	1.5% diluted sample	-	-
7	2.0% diluted sample	-	-

Note: Diameter in mm measured by vernier caliper.- means no zone of inhibition.

DISCUSSION

The antimicrobial activities of Phyllanthusacidus extract were successful determine by using well diffusion method.The extract of Phyllanthusacidus with n-Butanol solvent it gives good zone of inhibition over bacteria E.coli and S.aureus using well diffusion method.Where Phyllanthusacidus extract does not give any effect on fungi Aspergillusflavus and Aspergillusniger, It indicate that Phyllanthusacidus extract having antibacterial activity but it does not have antifungal activity with n-Butanol solvent.

The undiluted sample of Phyllanthusacidus leaf extract give a better activity with n-Butanol solvent other than diluted sample with n-Butanol.

CONCLUSION

In this study it is concluded that P.acidus has high antimicrobial activity leaf extract with n-Butanol extract.It contains tannins is detected by performing several chemical tests such as test for alkaloids,flavonoids,steroids,terpenoids,anthraquinone,phenols,saponine,tanin,oils and resins.The antimicrobial assay also proves that the leaf extract obtained high concentrationyeid,that is the P.acidusleaf extract have high antibacterial activity over E.coli and S. aureus and does not have antifungal activity.

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