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Short communication

PHYTOCHEMICAL AND ANTIBACTERIAL STUDIES OF EXTRACTS OF *FLABELLARIA PANICULATA*

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The phytochemical and antibacterial studies of the leaf extracts of Flabelleria paniculata cav, have been investigated. Antibacterial activity was investigated using Staphylococcus. aureus, Pseudomonas aerugniosa, Eustaricia coli and Klabellia pneumoniae. The petroleum ether extract was completely inactive. At the concentration of 50mg/ml aqueous extract produced zone of inhibition of 3mm (S. aureus,) and 2mm (Ps. aerugniosa) but was inactive against E. coli and K. pneumoniae. At 10mg/ml chloroform extract produced zone of inhibition of 3mm (S. aureus), 2mm (Ps. aerugniosa), 2mm (F. coil) and 3mm (K. pneumoniae). Chloroform extract showed MIC values of 1 .75 mg/ml and 2mg/ml for Ps. aerugniosa and S. aureus respectively. Saponins, cardenolides, alkaloid and tannins were detected in the leaf. This study justifies the local uses of the plant for the treatment of skin diseases and wounds.

Key words: *Flabelleria paniculata*, antibacterial phytochemicals.

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INTRODUCTION

Flabellaria paniculala Cav. (Malpigbiaceae) is a climbing shrub 3 -15m high. The leaves are silvery under surface with white to pale pink flowers. It is a herb indigenous to the Tropical Western African. It is known in Yoruba as "Ajidere" (Burkill, 1995). This species was chosen from a collection of medicinal plants obtained from traditional healers. The plant is used in herbal medicine to treat skin diseases, dysentery and sores. There is very scanty literature on this species. No previous chemical and biological studies have been reported so far as corroborated by NAPRALERT database (2001). This study reports phytochemical screening and antibacterial property of the leaf extract of *F. paniculata*.

MATERIALS AND METHODS

Plant Material: The leaves of *F. paniculala* were collected at Ago-Iwoye in Ogun State and authenticated at the Forestry Research Institute of Nigeria (FRIN), Ibadan, where herbarium specimen had been deposited as FHI 106122. 50g of oven-dried (45°C) leaf of plant sample was macerated with 70% methanol for 5 days. The filtrate from each extraction was combined, dried, concentrated to dryness in vacuo and weighed (yield 15.2%). The extract was later partitioned into petroleum ether, chloroform and aqueous fractions.

Phytochemical Screening:
Phytochemical investigation of the powdered sample was carried out by the standard procedures (Harborne, 1984; Sofowora, 1993 and Evans. 1996).

Microorganisms:
The pathogenic bacteria used were *Staphylococcus aureus* (NCTC 6571), *Pseudomonas aeruginosa* (NCTC 6750). *E. coli* (NCTC 9750) and *K. pneumonae*. They were obtained from the Department of pharmaceutical Microbiology, University of Ibadan, Ibadan.

Antibacterial Assay:
The agar diffusion method (Tally and Gorbach, 1980) was used. MIC values were determined by the macro-broth dilution technique (Odarna *et al*, 1986).

RESULTS AND DISCUSSION

The results of the phytochemical screening (Table 1) revealed the presence of saponins, cardenolides, alkaloids and tannins in the leaf of *F. paniculala* while anthraquinones, cyanogenic glycoside and flavonoids were found absent.

Table 2 shows the antibacterial potential of the crude extract of *F. paniculata*. The order of

susceptibility of the bacteria to the extract was: *S. aureus* > *Ps. aeruginosa* > *K. pneumonia*e > *E. coli.* The results reveal that the chloroform fraction demonstrated the highest antibacterial potential while pet- ether was completely inactive.

The MIC values for *S. aureus* (2mg/ml) and *P. aeruginosa* (1.75mg/ml) are very encouraging in that further purification will enhance the activity of the extract against the test organisms. Further studies are in progress to purify the chloroform extract and isolate the active principle(s) as well.

Table 1:
Natural products from *Flabellaria paniculata*

Natural Product	Leaf
Saponins	++
Cardenolides	++
Alkaloids	+
Tannins	+
Anthraquinones	-
Cyanogenetic glycoside	-
Flavonoids	-

+, positive; ++ highly positive: - negative

Table 2:
Antibacterial activity of Pet-ether, chloroform and aqueous extract of *F paniculata*

Microorganism	Dose (mg/ml)	Methanol extract	Pet-ether extract	$CHCl_3$ extract	Aqueous extract	Gentamicin (8ug/ml)
S. aureus	A	10	5	22	10	14
	B	6	0	14	4	
Ps. aeruginosa	A	9	0	20	6	6
	B	7	0	12	3	
E.coli	A	4	0	12	3	8
	B	0	0	16	0	
K. Pneumonia	A	8	0	20	5	13
	B	6	0	14	0	

A, 100mg/ml; B, 50mg/ml. Figures are mean diameter of zones of inhibition in mm; 0, no inhibition; 60% MeOH (no inhibition).

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