Phytochemical analysis and Antifungal Activity of ethyl acetate extract of *Andrographis Paniculata*

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Abstract
Andrographis paniculata belongs to family Acanthaceae commonly known as kalmegh. A. paniculata is distributed in tropical Asian countries often in isolated patches. In the present study the active ethyl acetate was subjected for phytochemical analysis and for antifungal activity by using diffusion method. The activity was tested against Aspergillus nigar, at different concentrations of 10, 20 and 40 µl.

Key words: *Antifungal, Andrographolide, Diffusion method.*

Introduction

One of the medicinal plants that seen promising is *Andrographis paniculata* (AP), a shrub found throughout Southeast Asia. The aerial parts of the plant (leaves and stems) are used to extract the active phytochemicals. The leaves contain the highest amount of andrographolide[1] (2.39%), the medically most active phytochemical in the plant, while the seeds contain the lowest amount. Andrographolide and kalmegh(*Andrographis paniculata*) extract reported for in vivo and in vitro effect on hepatic lipid peroxidation.[1] Antifungal activity (*in vitro*) of some plant extracts against four fungal pathogens of different hosts also reported. [5]

However, literature review failed to offer any scientific validation on the anti-fungal activity of ethyl acetate extract of *Andrographis paniculata*. Hence, this leads us to study for anti-fungal activity of ethyl acetate extract of *Andrographis paniculata* in different concentration.

Methodology

Phytochemical screening

The phytochemical screening of extract was analysed by different chemical test (preliminary test) and thin layer chromatography (confirmatory test).

Antagonistic activity of Ethyl acetate extract against A.nigar[5]

After the inoculation procedure of Fungus prepared solution/dilution of andrographolide(1.5mg in 100µl) is taken and in Petri plate dipped 4 disc of filter paper. After them marked as one control, on 2nd applied 10µl, on 3rd applied 20µl and on 4th filter disc applied 40µl and incubated for 48hrs. After 48 hrs saw zone of inhibition and measured them.

Antagonistic activity of Ethyl acetate extract against fusarium[5]

Result:

Antagonistic activity of Ethyl acetate extract against A.nigar showed with figure 1 and table 2.

Antagonistic activity of Ethyl acetate extract against fusarium showed with figure 2 and table 2.

Table1. Phytochemical screening of ethyl acetate extract

S.No	**Compounds**	**Extract of AP leaves**
1	Diterpenoids	Present
2	Flavoinds	Absent
3	Glycosides	Present
4	Reducing sugars	Absent
5	Saponins	Absent
6	Steroids	Absent
7	Tannins	Absent
8	Terpenoids	Present

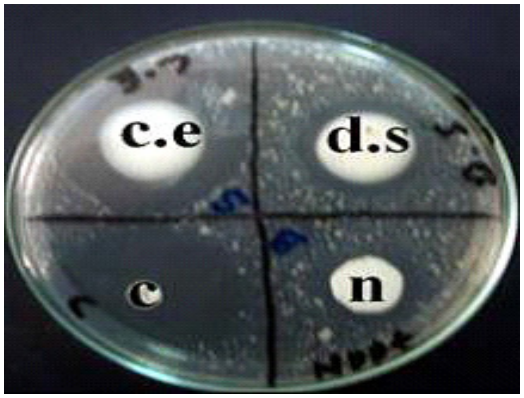

Fig.1. Zone of inhibition of A.niger culture by different ethyl acetate Concentration

C: 10 µl Concentration.

n: filter paper disk dipped in 20µl Concentration

d.s: filter paper disk dipped in **40**µl Concentration.

ce: Std Andrographolide dilution.

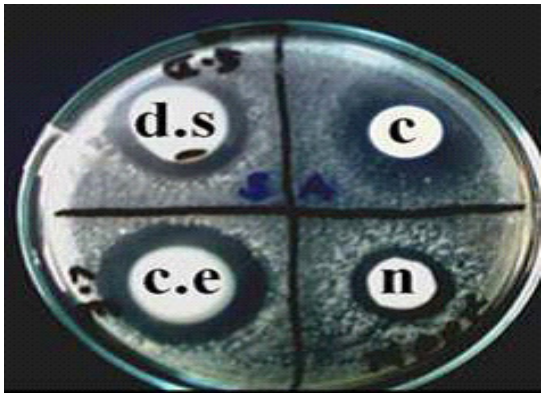

Fig.2. Zone of inhibition of Fusarium by different ethyl acetate extract dilution

C: 10 µl Concentration.

n: filter paper disk dipped in 20µl Concentration

d.s: filter paper disk dipped in **40**µl Concentration.

ce: Std Andrographolide dilution.

Table1.2 Antifungal activity of ethyl acetate extract of *Andrographis paniculata*

S. No	**Fungus**	**Inhibition zone diameter(mm)[a.b]**		
		40µl(A.S)	20µl(A.S)	10µl(A.S)
1	**A.niger**	24±0.5	22±0.4	16±0.5
2	**Fusarium oxysporum**	35±0.5	30±0.5	25±0.5

a: mean value± SD(the zone of inhibition(in mm) including disc of 8mm in diameter)

b: ststistical analysis data are expressed as means± SD

For antifungal activity it clear that, from the table 2 it is clear that ethyl acetate extract is active against Aspergilus and Fusarium.We can also seen that as we increasing concentration zone of inhibition increasing. Ethyl acetate extract is most active against fusarium. Now we can conclude that ethyl acetate extract of *Andrographis paniculata* showed antifungal property against fungus Fusarium and Aspergilus nigar

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