
Antifungal Activity of *Eclipta alba*

S. VENKATESAN* AND R. RAVI¹

P. S. G. College of Pharmacy, Coimbatore-641044.

¹S. B. College of Pharmacy, Sivakasi-626130.

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The *in vitro* antifungal activity of *Eclipta alba* (whole plant) extracts has been investigated against *Candida tropicalis*, *Rhodotorula glutinis* and *Candida albicans*. The extracts of *Eclipta alba* showed high degree of activity against all test fungi. The inhibitory effects of extracts are very similar to those of standard antibiotics used.

In traditional system of medicine *Eclipta alba* Hassk (Family: Compositae) is used in the treatment of asthma, jaundice, ulcers and as a hair restorant¹⁻⁶. In rural areas of Madurai district this plant is used to treat many microbial infections⁷. However, *E. alba* does not appear to have been subjected to experimental studies to determine its antifungal activity. Therefore, the present study has been taken up to investigate the potential antifungal activity of *E.alba* in experimental animals.

The plant material was identified and authenticated by the Tamilnadu Agricultural College and Research Institute, Madurai. The powdered plant material was exhaustively extracted with petroleum ether (60-80°), chloroform, acetone and ethanol (95%) using a Soxhlet extractor. The extracts were concentrated to dryness *in vacuo*.

The ethanol (95%) extract was dissolved in sterile water. Other organic extracts were made soluble in sterile water by using sterile Tween 20 (0.5 ml), which was previously tested for antifungal activity against all test fungi and found to have no antifungal activity. The solutions of all extracts were further diluted with vehicle to get test solution of desired concentrations. Solutions of desired concentrations of amphotericin B and nystatin were prepared in DMF and used as standards.

The antifungal activity of various organic solvent extracts was assayed by Cup-plate method⁸. Amphotericin B and nystatin were used as standard and Subouraud dextrose agar was employed as the growth medium. The *in vitro* screening of antifungal activity was carried out against 72 h cultures of *C. tropicalis*, *R. glutinis* and *C. albicans*. The plates were inoculated with 72 h growth of respective fungi in soybean casein digest medium. A previously liquefied medium was inoculated with 0.2 ml uniformly turbid growth suspension of the test fungi at a temperature of 37-40° and 20 ml of the inoculated medium was poured immediately into 8.5 cm plates. The plates were placed on a leveled surface to get uniform thickness. After complete solidification of medium holes were made aseptically with a 6 mm sterile cork borer 0.2 ml (1 mg/ml) of test solution of each extract as well as standard (1 mg/ml) was poured in it using a dropping pipette under aseptic condition. The plates were kept at 25-27° and the zones of inhibition measured after incubation for 72 h. Each experiment was carried out in triplicate and the mean diameter of inhibition zone was recorded.

Results of screening of antifungal activity of *E. alba* extracts are summarized in Table 1. It is evident from the results that various organic solvent extracts showed high antifungal activity against all the test fungi. All four extracts showed significant growth inhibition of *C. tropicalis*, *R. glutinis* and *C. albicans*. The degree of growth inhibition ranged from 10 mm to 19 mm against test fungi and was

*For correspondence

E-mail: Venkatesan27@yahoo.com

TABLE 1: ANTIFUNGAL ACTIVITY OF *ECLIPTA ALBA* EXTRACTS

Organisms	Diameter of growth of inhibition zone (mm)					
	Extracts				Standards	
	Petroleum Ether (a)	Chloroform (a)	Acetone (a)	Ethanol 95% (b)	Amphotericin B (a)	Nystatin (a)
<i>C. tropicalis</i>	12	11	14	13	15	17
<i>R. glutinis</i>	19	16	11	13	29	24
<i>C. albicans</i>	17	10	12	10	15	19

All values are average of three determinations. The concentrations were (a) 1 mg/ml, (b) 20 mg/ml. Tween 20 had not shown any antifungal activity against any of the organisms.

comparable with that produced by amphotericin B and nystatin. The detailed chemical nature of the active principle, responsible for antifungal activity is not known. However, a preliminary phytochemical screening revealed the presence of cardiac glycosides, sterols and flavonoids. The petroleum ether (60-80°), chloroform, acetone extract of *E. alba* were found to have wider antifungal activity. From these results, it can be concluded that *E. alba* extracts may find a use as broad-spectrum antifungal agents after further extensive investigations.

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