

## ANTIFUNGAL ACTIVITY OF SOME COLEUS SPECIES GROWING IN NILGIRIS.

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*Received :8-2-2006*

*Accepted : 24-5-2006*

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### ABSTRACT

The in vitro antifungal activity of solvent extracts of *Coleus forskohlii*, *Coleus blumei* and *Coleus barbatus* were compared by testing against some pathogenic fungi like *Aspergillus niger*, *Aspergillus fumigatus*, *Aspergillus ruantii*, *Proteus vulgaris* and *Candida albicans*. The petroleum ether extract of *Coleus forskohlii* and *Coleus barbatus* exhibited significant antifungal activity against all the selected organisms. The extracts of *Coleus blumei* did not show any significant antifungal activity against the selected organisms.

### INTRODUCTION

*Coleus forskohlii*, *Coleus blumei* and *Coleus barbatus* belong to the family Labiatae and grow through-out India. They are perennial herbs with a small woody quadrangular stem and branches. Leaves usually three at a node, oblong in shape. Many flowers are seen in long cylindrical thyrus with pairs of acute bracts at each branching <sup>1,2,3,4</sup>.

The literature survey reveals that *Coleus* species have much pharmacological importance.

*Coleus forskohlii* has been screened for bronchodilation activity in human and in animals<sup>5</sup>.

*Coleus forskohlii* and *Coleus barbatus* are well known in Ayurvedic medicine and in traditional practice for treating cough, cold, bronchitis, asthma and respiratory infections <sup>6</sup>.

A phytochemical investigation and pharmacological activity of *Coleus forskohlii* and *Coleus barbatus* is also reported <sup>7</sup>. In folklore and traditional practice in and around Coimbatore and Nilgiris district, Tamilnadu; the leaves of *Coleus forskohlii*, *Coleus blumei* and *Coleus barbatus* have been used to treat wide varieties of skin ailments like scabies, psoriasis and ring worm infections.

## Materials & Methods

### Plant Material

The fresh leaves of *Coleus forskohlii*, *Coleus blumei* and *Coleus barbatus* were procured from the herbal garden, JSS College of pharmacy, Ootacamund in the month of October 2005. The plants were botanically identified and authenticated by the Deputy Director, Botanical survey of India, Southern circle, Coimbatore. A voucher specimen of the plant is maintained in the department of Pharmacognosy, PSG College of Pharmacy, Coimbatore (Voucher number: PSG COG-158,159&160).

### Method

The leaves were dried under shade and powdered. 300 g of the powdered drug was exhaustively extracted with petroleum ether, chloroform, acetone, methanol and water using soxhlet extractor. The extracts were evaporated to dryness under controlled temperature.

The extracts were then separately dissolved in sulphoxide (DMSO) to get 5, 10 & 15 mg/ml solutions and tested for antifungal activity using 10 µl of the three sample solution per disc. 10 µl of Clotrimazole (1 mg/ml) was used as standard antifungal agent. Himedia nutrient agar was used as medium<sup>8,9,10</sup>.

The solvent (DMSO) used for solubilisation was previously tested for its antifungal activity against all the test organisms and found to be negative.

The antifungal activity was assayed by disc diffusion method and the disc diameter was 6 mm.

The *in vitro* screening was carried out using *Aspergillus niger*, *Aspergillus fumigatus*, *Aspergillus ruantii*, *Proteus vulgaris* and *Candida albicans*. The plates were incubated at 28 °C for 48 hours and the zone of inhibition was measured.

### Discussion

It is evident from the zone of inhibition that the petroleum ether extract of *Coleus forskohlii* and *Coleus barbatus* exhibited prominent antifungal activity against all the strains used in the study. The methanolic extract showed a feeble antifungal activity against *Aspergillus niger* and *Aspergillus fumigatus*. The extracts of *Coleus blumei* did not show any significant antifungal activity against the selected organisms. The result of screening of antifungal activity of petroleum ether extract of *Coleus forskohlii*, *Coleus blumei* and *Coleus barbatus* are summarized in Table 1.

### Conclusion

The result suggests that the petroleum ether extract of *Coleus*

*forskohlii* and *Coleus barbatus* possess significant antifungal activity. The study thus justifies the folk therapy of the title plants in varieties of fungal infections.

Phytochemical investigation of the petroleum ether extracts of the leaf of *Coleus forskohlii* and *Coleus barbatus* is under progress.

**TABLE I :**

Antifungal activity of petroleum ether extracts of *Coleus forskohlii*, *Coleus barbatus* and *Coleus blumei*

S.NO	Microorganism	Sample A			Sample B			Sample C			Control IZ in mm <sup>a</sup> Con. 1 mg/ml
		IZ in mm <sup>a</sup>			IZ in mm <sup>a</sup>			IZ in mm <sup>a</sup>			
		Con : mg/ml			Con : mg/ml			Con : mg/ml			
		5.0	10.0	15.0	5.0	10.0	15.0	5.0	10.0	15.0	
1	<i>Aspergillus niger</i> .	-	10.0	26.0	-	9.5	20.0	-	-	-	28.0
2	<i>Aspergillus fumigatus</i> .	-	8.0	23.0	-	11.0	20.5	-	-	-	26.0
3	<i>Aspergillus ruanthii</i> .	-	8.5	19.5	-	7.5	18.5	-	-	-	22.0
4	<i>Proteus vulgaris</i> .	-	8.0	18.0	-	9.0	18.0	-	-	-	20.5
5	<i>Candida albicans</i> .	-	10.0	23.5	-	12.0	22.0	-	-	-	25.0

Sample A - *Coleus forskohlii*, Sample B - *Coleus barbatus*, Sample C - *Coleus blumei*  
 ‘-’ No measurable activity, Control – Clotrimazole, a- an average of triplicate

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