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Microbiological Activity of Essential Oil Extracted from *Coleus aromaticus* Linn. Leaves

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ABSTRACT

Antibacterial and antifungal activity of essential oil extracted from leaf of *Coleus aromaticus* Linn. (Lamiaceae) were investigated. The antibacterial activity was tested against both Gram-positive and Gram-negative organisms. The essential oil showed maximum activity against *Salmonella typi*, *Staphylococcus aureus, Bacillus subtilis.* The essential oil does not have any influence on *Escherichia coli.* The standard drug used was chloramphenicol. The antifungal activity against two fungal species *Candida albicans, Aspergillus niger* were investigated and the essential oil was reported to have maximum zone of inhibition against *C. albicans*. The essential oil exhibited concentration dependent activity.

Keyword: Antimicrobial activity, medicinal plants, essential oil, cup plate diffusion.

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INTRODUCTION

Coleus aromaticus Benth., (Lamiaceae), syn. *Coleus amboinicus* (Lour.) Spreng. or *Plectranthus ambonicus* Lour, is commonly known as Indian / country borage. It is a large succulent herb with aromatic leaves, found abundantly in India. The leaves of this plant are traditionally used for the treatment of severe bronchitis, asthma, diarrhea, epilepsy, renal and vesicle calculi and fever [1].*C. aromaticus* has been reported to exhibit antilithiotic [2], chemopreventive [3], antiepileptic and antioxidant properties. The present paper reports the antibacterial and antifungal activity of essential oil extracted from *Coleus aromaticus* Linn. leaves.

MTERIALS AND METHOD

Experimental Methods

The leaves of *Coleus aromaticus* were abundantly found in Erode, India. The collected plant material was authenticated by the comparing the available specimen at botanical survey of India, Coimbatore.

Extraction

The collected plant material was washed with running water to remove all the adhering materials. Then weighed amount of leaf was subjected to hydrodistillation by using clevenges apparatus. Finally the oil was collected. The collected oil was used for all the experimental works.

Screening of antimicrobial potential

The nutrient agar medium and sabouraud's dextrose agar media were prepared and transferred into sterile petri dishes. The standardised seeded broths were incubated into the medium. The cavities were prepared in each petridishes by using sterile borer. The deferent concentrations of the essential oil were placed in the cavities. All plates were kept in refrigerator for diffusion. Then the bacterial culture plates were incubated at 37^{o} C for 24 hrs and the fungal culture plates were incubated at 22^{o}C for 48 hrs. After incubation period the zone of inhibition diameters (in mm) were measured.

Estimation of minimum inhibitory concentration (mic)

The standardized seeded broth was used for the estimation of MIC. The different concentrations of the essential oil were prepared by using two fold serial dilution techniques. The pure oil was placed in the seeded broth from the solutions of different concentrations. The bacterial and fungal cultures were prepared in triplicate and all tubes were incubated. After incubation the MIC was estimated

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RESULTS AND DISCUSSION

Table-1. The physico chemical properties of the oil

Colour	Odour	Specific gravity	% Yield	Wt/ml	Solubility
Golden Yellow	Aromatic fragrant	1.1707	0.077(v/w)	0.8542 g	Ether, Alcohol

Table 2. Antimicrobial activity of oil

Amount µl	Zone of Inhibition (mm)					
	E. coli	*S. typi*	*S. aureus*	*B. subtilis*	*A. niger*	*C.albicans*
100	-	30	26	29	-	20
50	-	27	23	28	-	18
25	-	24	19	25	-	17
Standard	31	28	28	30	-	24

The physico chemical properties of the oil *Coleus aromaticus* shown in table 1. The results of the microbiological activity of the essential oil extracted from *Coleus aromaticus* Linn. Leaves were tested against selected organisms and are presented in Table-2.

CONCLUSION

In conclusion, essential oil extracted from *Coleus aromaticus* possess a broad spectrum of activity against a panel of bacteria and also fungal species responsible for the most common diseases. These promissory extracts open the possibility of finding new clinically effective antimicrobial compounds.

REFERENCES

[1] Indian Medicinal Plants 1995; 1 st Edn, Orient Logman Limited, Madras; pp. 315-317.
[2] Jose AM, Ibrahim S, Janardhanan S. Indian J Pharmacol 2005; 1: 43-44.
[3] Prasad SS, Naik P, Vijayalaxmi KK. Indian J Exp Biol 2002; 40: 1020-1025.