



DETECTION OF ESSENTIAL AMINO ACIDS & OILS FROM *LEUCAS* SP. A MEDICINALLY IMPORTANT PLANTS OF LAMIACCAE

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Abstract

Detection of essential amino acids and oil, were carried on the medicinally important plants *Leucas cephalotus* and *Leucas martinicensis*. The *Leucas martinicensis* is useful in fever, bronchitis, paralysis and in expelling mosquito. The *Leucas cephalotus* an infusion is used as a bath for hysterical fits and for pain in joints. Leaves are consumed for their palatability and nutritional or medicinal values. Leaves are good source of protein containing essential oil and amino acids. Also serve as food and health supplement to local people. The present investigation *Leucas cephalotus* and *Leucas martinicensis* were belong to family Lamiaceae provide valuable information about the presence of essential amino acids and oil. Also give the stronger indication of potential medicinal and nutritive values to human welfare.

Keywords: Essential oils, Amino acid, *Leucas* sp., Lamiaceae

Introduction

Since antiquity aromatic plants have been used as flavor, food and drink, for imparting fragrance to human body, used by beautification and home growing garden for religious rites, as insect repellent, in cosmetic, personal adornment, medicine, flavor and fragrance have now become every day necessities and their demands constantly increasing worldwide. Although, there is sharp competition between naturally desired aromatic material and synthetic, the two are supplementary and most go hand in hand. However, there is a preference for natural essential oils. Most of the essential oils are used in aromatherapy, which involves the use of aromatic or essential oils. Aromatherapy seems to be one of the oldest treatments of healing Hieghyphis (4500B.C.) have mentioned the use of aromatic substances as a drugs and medicine by Egyptians [1].

A total of 76 compound isolated from plants are prescribed. In addition 99 crude extracts of plants are also recommended as drugs. A survey of the most common plants used in medicine shows 45% of the medicinal plants contain alkaloids are their active principle, 25% plants contain triterpenoids while 16% plants phenolics. [2]. The scientific evaluation of ethno-medicinally important plants has become much more common, particularly as a number of drugs discovery programs have be again the regular screening of traditional herbal remedies. In recent years, chemical analysis and biological assay have begun to play an important part in ethnobotanical studies. In several

cases, such analysis have bioactive phytochemical. Although a vast indigenous knowledge about the medicinal plants was available in India only few of them are scientifically and experimentally screened [5].

The family Lamiaceae consists of about 180 genera and 3500 species. They are abundant in tropical and Mediterranean region. In India the family is represented by 55 genera and 2600 species. Therefore present work carried out for detecting essential amino acid and oils.

Material and Methods

The plants of *Leucas cephalotus* and *Leucas martinicensis* were collected from different places of Marathwada region. The voucher specimen identified and preserved in the Department of Botany, Government Institute of Science, Aurangabad. (MS.)

The collected plants were washed repeatedly with tap and finally with distilled water and were shade dried after cutting into small pieces. The powder of the shade-dried material was used for physico-chemical analysis by following the methods of Indian Pharmacopoeia [3].

For detection of Amino Acids a known quantity (dry/wt) of the mixed sample material was grinded in a sterile pastel and mortar with 10 fold volume of distilled water. The content was shaking at 55°C for 30 minutes and centrifuged at 10,000 rpm for 10 minute. Supernant was collected and run over a TLC plate for separation of amino acids ninhydrin (100 in 100ml

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acetone) was sprayed for spot detection and the amino acids were compared with standard amino acids and identified by their colours and R_f values. [4]

$$R_f \text{ values} = \frac{\text{Distance traveled by Amino acid}}{\text{Distance traveled by Solvent}}$$

For analysis of essential oil, the 5 gm of dry powdered was kept covered with 50ml solvent ether in a conical flask for 30 minutes with frequently shaking. The clear supernatant was collected and concentrated. It was spotted on silica gel plate. The plates were developed in benzene and chloroform (1:1). The chromatogram were dried and sprayed with vanillin sulphuric acid. The plates were then warmed over hot plate for 3-5 minutes or by keeping in an oven at 60°C

for 5 minutes. Monoterpene appeared as variously coloured spots.

Results and Discussion

The thin layer chromatography (TLC) fingerprint of the *Leucas cephalotus* showed blue coloured spot with 0.38 R_f values on the TLC fingerprint. The blue spot is a sign of the presence of cineol as monoterpene, which is ingredient of volatile oil.

The thin layer chromatography (TLC) fingerprint of the *Leucas martinicensis* showed pink coloured spot with 0.56 R_f value. The pink coloured spot on TLC fingerprint designate the presence of leucodine as a principle active component of monoterpene, from the volatile oil.

Table No. 1: Detection of amino acids from *Leucas sp.* extract on the basis of R_f values

Hot water extracts n Butanol : Acetic : water 4:1:5(solvent system)						
Sr. No.	Name of the plants	Distance traveled by solvent (cm.)	Spots Appeared At(cm.)	Colour of Spot	R_f Values	Amino acids
1	<i>Leucas cephalotus</i>	13	2.6	Plate violet	0.20	Histidine
		13	6.0	Yellow	0.46	Glycine
		13	9.5	violet	0.73	Leucine
		120	26.0	Pale violet	0.22	Histidine
2	<i>Leucas Martinicensis</i>	120	42.0	Dark violet	0.35	Theomine
		120	54.0	Violet	0.45	Glycine
		120	91.0	Violet	0.76	Leucine

Table No. 2: The principle Monoterpenoid component

Sr.No.	Name of the Plant	R_f values	Coloure spot	Major Monoterpenoids
1	<i>Leucas cephalotus</i>	0.56	Pink	Leucodine
2	<i>Leucas Martinicensis</i>	0.38	blue	Cineole

Paper chromatography indicated the presence of three essential amino acids namely histidine, glycine and leucine (Tables 1,2). In *Leucas cephalotus* maximum quantity of leucine indicates its potential nutritive values. *Leucas martinicensis* four essential amino acids namely histidine, glycine, leucine and theomine. Theomine and Leucine which indicates superiority over *Leucas cephalotus* concerning nutritive values. Amino acid arginine is found in both plants which is essential in young growing animals. So many herbs are still consumed as good source of fairly good amount of several nutrients and it is widely accepted that herb are significant nutritional source of minerals.

Therefore the present investigation shows that the given species seems to be equally good in their composition and nutritive value. This is an area which needs further investigation.

Conclusion

The present investigation on *Leucas cephalotus* and *Leucas martinicensis* were belonging to family Lamiaceae provide valuable information about the presence of essential amino acids and oil. Also give the stronger indication of potential medicinal and nutritive values to human welfare.

Reference

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