

PHARMACOGNOSTICAL AND PHYTOCHEMICAL STUDIES ON LEAVES OF *ANTISOMELES MALABARICA* R.BR.

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Received : 03.10.2002

Accepted : 25.12.2002

ABSTRACT: The present study includes the morphological and anatomical characteristic of the leaf along with the determination of physio chemical constants, phytochemical screening and volatile oil content determination on the leaves of *Anisomeles malabarica* (LAMIACEAE) to provide some pharmacognostical standards and serves as a standard reference for the identification of *Anisomeles malabarica*.

INTRODUCTION

Anisomeles malabarica R. Br. is an erect shrub commonly known as 'Malabarcatmint' distributed throughout South India¹. In the traditional medicinal the infusion of the leaf is used for fever, epilepsy and the fever arising from teething in children. The decoction of the leaf and essential oil are used externally in rheumatic arthritis²⁻⁴. From the earlier studies the alcohol and aqueous extract of the leaf reported to have a significant spermicidal activity⁵. The plant also have reported for the presence of antisomelic acid, ovatodiolide, anisometyl acetate (diterpene) and betulinic acid (triterpene)⁶. Due to the medicinal importance of *Anisomeles malabarica*, the present study deals with morphologic and anatomic features, physio chemical constants and phytochemical screening of *Anisomeles malabarica* leaves.

MATERIALS AND METHODS

The leaves of *Anisomeles malabarica* were collected from Dharmapuri, Tamil Nadu, India. The identity of the specimen which is preserved in our laboratory for the further references. The plant was confirmed by

comparison with authenticated herbarium specimen⁷. The leaves were dried under shade in an open air.

The macroscopical characters of the leaves were observed⁸. For the histological investigation free hand section were taken. The leaf parameters such as vein islet number, vein termination number and stomatal index were studied⁹. The Physio chemical constants were determined by the pharmacopeial methods¹⁰.

The successive extraction of the powder was done cold maceration method using various solvents such as petroleum ether, ethyl acetate, ethanol (90%) and chloroform water (0.25%). The preliminary phytochemical tests of different extracts were performed by specific reagents^{11,12}.

RESULTS AND DISCUSSION

The macroscopical characters were given in Table 1. In the anatomical characters, the lower epidermis of the leaves are covered by a thick layer of cuticle. The epidermal cells are polygonal, equal in size and shape. Paracytic stomata are present in the both

surfaces. The leaf mesophyll consisting of elongated palisade cells arranged in a single layer. The midrip portion of the leaf contains two layers of collenchymatous cells on both epidermis. The vessels in the vascular bundles are annular and spirally thickened. The leaf parameters such as vein islet number, vein termination number and stomatal index were shown in Table 2.

The physico chemical constants such as ash values, loss on drying, water soluble extractive and alcohol soluble extractive and crude fibre content were given in the Table 3. The various extracts were subjected to preliminary phytochemical screening. The

presence of phyto constituents are given in the Table 4. The fresh leaves and shade dried leaves were subjected to hydro distillation separately and the presence of volatile oil have been reported in the Table 5.

CONCLUSION

The botanical characters, physical constants, presence of compounds including the volatile oil content of the leaves of *Anisomeles malabarica* are presented. It will serve as a standard data for the quality control of the preparations from *Anisomeles malabarica* leaves in future.

Table 1 : MACROSCOPICAL CHARACTERS OF ANISOMELES MALABARICA

CHARACTER	OBSERVATION
Colour	Upper surface – Pale green, Lower surface greenish white
Odour	Aromatic, pleasant
Size	5 – 7 cm long, 3 - 4.5 cm wide
Surface	Soft, wooly
Shape	Oblong – Lanceolate
Type	Simple
Arrangement	Opposite
Petiole	Short (1 – 1.5 mm)
Margin	Crenate – Serate
Apex	Acute
Veination	Pinnate
Midrip	Lower surface – Projected, Upper surface - depressed

Table 2 : LEAF PARAMETERS OF ANISOMELES MALABARICA

PARAMETERS	MAXIMUM	MINIMUM	AVERAGE
Vein Islet No.	16.0	11.0	13.5
Vein Termination No	18.0	12.0	14.7
Stomatal Index Upper	12.0	07.4	09.7
Lower	10.0	06.5	08.0

Table 3 : PHYSICO CHEMICAL CONSTANTS OF ANISOMELES MALABARICA LEAVES

PHYSICAL CONSTANTS	MAXIMUM %	MINIMUM %	AVERAGE %
Total ash	02.30	01.92	02.13
Water soluble ash	00.89	00.65	00.72
Acid insoluble ash	01.12	00.93	01.06
Sulphated ash	06.41	05.24	05.68
Loss on drying	05.92	04.80	05.43
Water soluble extractive	11.08	09.26	10.87
Alcohol soluble extractive	17.62	15.82	16.28
Crude fibre content	15.08	14.40	14.66

Table 4 : PHYTOCHEMICAL SCREENING OF EXTRACTIVES OF ANISOMELES MALABARICA LEAVES

EXTRACT	ALKALOID	SUGAR	TANINN	PROTEIN	STERIOD	SAPONIN	LIGNIN
PE	-	-	-	-	+	-	-
EA	+	-	-	-	+	-	-
AL	+	+	+	-	-	+	+
CW	-	+	+	-	-	+	+

PE – Petroleum ether, EA-Ethyl acetate, AL-Alcohol, CW – Chloroform water + Presence, - Absence

Table 5 : VOLATILE OIL CONTENT OF ANISOMELES MALABARICA LEAVES

MATERIALS	PERCENTAGE YIELD	COLOUR
Fresh leaves	2.56	Pale Yellow
Shade dried leaves	1.62	Pale Yellow

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