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Pharmacognostic and Leaf Architectural studies of *Anisomeles malabarica* R .Br. (LAMIACEAE)

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ABSTRACT

Anisomeles malabarica an aromatic Medicinal Plant,was analysed for its Priliminary Pharmacognostic features it showed presence of bioactive compounds like Alkaloids, Phenols,Saponins,Tannins etc. Details of dermatological and Leaf architectural features were studied .

Keywords: Pharmacognostic studies,Epidermis,Leaf Architecture.

Introduction

Anisomeles malabarica is perennial undershrub much branched from base.with great medicinal value is belongs to the family Lamiaceae. characterized by the presence of camphor-scented flowers used in medicine to cure various diseases like fever, anti-inflammatory, antiseptic, skin diseases, abdominal pain, psoriasis etc. an attempt was made during present investigation to undertake anatomical and pharmacognostic study of this plant for its proper utilization

Materials and methods

The plant materials were collected from Ambajogai. after rainy season.the whole plant was uprooted from the soil and dust was cleared .Root ,stem and Leaves were separated and dried in air .The dried material was finely powered,sieved through muslin cloth and stored for chemical analysis .Leaf epidermal studies were carried out on fresh specimen The whole plant was uprooted, cleared from the soil and dust, the leaves, stem, and root were separated and dried in air. The dried material was finely

powdered, sieved through muslin cloth and stored for chemical analysis. Few uprooted plants of each species, were preserved in 70% alcohol.

Leaf epidermal studies were carried out on fresh specimens. For which the Peels were stained with safranin (1%) mounted in glycerin and made semipermenant by ringing with DPX solution. Stomatal index (SI) was calculated as defined by Salisbury (1927, 1933), Viz, SI = S/E+S $\times$ 100.

Where 'S' is the number of stomata per unit area, and 'E' is the number of epidermal cells in the area. Stomatal frequency and stomatal index have been expressed as an average of ten reading. Palisade ratios (PR), was calculated as the average of palisade cells (P) beneath each epidermal cell (E) as defined by Zorning and Weiss; (1925), as PR = P/E

Small areas of the green tissues outlined by the veinlets are termed as Vein-islets or areoles. The vein- islets number is defined as the number of vein- islet per mm^2 of the leaf surface midway between the midrib and the margins. Levin (1920), determined veinlet number of veinlet number of several dicot leaves. Vein termination number is defined as the number of vein let terminations per mm^2 of the leaf surface midway between the midrib and margin. A vein termination is ultimate free termination of veinlet.

For study of vessels, fragments of plant organs like root and stem were macerated using a mixture of nitric acid (10%) and potassium dichromate (10%) solution in equal proportion. The vessel elements were stained with aqueous safranin (1%), dehydrated and mounted in DPX. Some vessel members were also examined in glycerin.

The line and cellular sketches of the figure were drawn using a camera lucida. The range of length and width of vessel elements was determined by the measurement

of 20-25 vessel elements, and were classified as per the classification given by Radford *et. al.* (1974),

Trans section of fresh and preserved materiel of leaf, petiole, node, stem, and root were taken by free hand section. The sections were stained with safranin (1%), light green, (1%), and mounted in DPX after the customary dehydration. Some hand sections were also examined in glycerin. Microphotographs of stem and root section were taken by using microphotographic camera affixed to Olympus Microscope. For leaf architecture, leaves were first cleaned by in 10 to 20% aqueous sodium hydroxide solution followed by trichloroacetic acid and phenol solution (2:1 by weight) and then stained with kores stamp pad purple ink (Rao et. al. 1980).

Ash ,acid insoluble ash ,water soluble ash and extractive valueswere determined following Johanson(1940),Phytochemical studies weredone using shade dried plant parts.following Harborne(1984) The phytochemicals were estimated following standard methods(Sadasivam and Manickam,1992,Chopra and Kanwar.1991.Mukharji1

Results and Discussions

Details of the Antomical Features of Anisomeles malabarica has beenpresented in PLATE he leaves are opposite simple ovate to oblong/lanceolate margin crenate,serrate,leaves very thick petiolate, petiole stout; apex acute, base rounded and slightely cuneate; lamina symmetrical. primary vein one straight, venation pinnate. The leaves are Dorsiventral & Amphistomatic The cells of adaxial epidermis are slightly larger the outer cell wall is thick .abaxial epidermis is of comparatively smaller cells. cuticle is thick. The mesophyll consist of Palisade & Spongy tissue. it consist of two layers of palisade cells& loosely arranged spongy tissue. the vascular bundles are collateral with xylem facing upwards. bundle sheath is present and is parenchymatous. The midrib vascular bundle is solitary.

The epidermal cells are polygonal ,isodimetric or elongated bud given out next in various directions.the cell walls were wavy or sinuous on both the surfaces. the adaxial epidermal cells are with thick cell walls and bigger in size as compared to the abaxial

epidermis stomata were Diacytic. Glandular and non glandular trichomes were present on both the epidermis.Details of Leaf constant given in Table no.1.

The petiole is somewhat flat with two small lateral wings .cuticle is present. one to two layered collenchymatous hypodermis. petiole vasculature consists of two central and two lateral vascular bundles.trichomes and stomata are common .papillae were absent.

T.S.of node is slightly rectangular in shape an arc shaped median vascular bundlecomes out from the vascular cylinder divides into three bundle comes out from vascular cylinder divides into three bundles before entering into the petiole. two traces for axillary bud given out next which unite to form a ring like structure for axillary bud. The node is unilacunar one traced

The present study revails that phytochemical screening of plant extract confirmed the presence of several bioactive compounds like alkaloids, flavones, saponin, tannins & phenols. This data will serve as a reference for the easy identification and quality control of the preparations of the above plant. Ash values and results of Phytochemical screening were tabulated in Table . 2&3 respectively

Leaf Constant Table .:1

	Maximum	Minimum	Average
Vein islet No.	16.0	11.0	13.5
VeinTermination No.	18.0	12.0	14.7
Stomatal index			
Upper Epidermis	12.0	7.4	9.7
Lower Epidermis	10.0	6.5	8.0

Ash values Table :2

Total Ash	2.3
Water Soluble Ash	0.72
Acid Insoluble Ash	1.06
Water Soluble Extractive	10.87
Water Insoluble Extractive	16.38

Phytochemical Screening Table: 3

	Alcohol	Petroleum Ether
Alkaloids	+	+
Flavonoids	+	+
Saponins	+	+
Tannins	+	+
Terpenoids	-	+
Steroids	+	-
Glycosides	-	-

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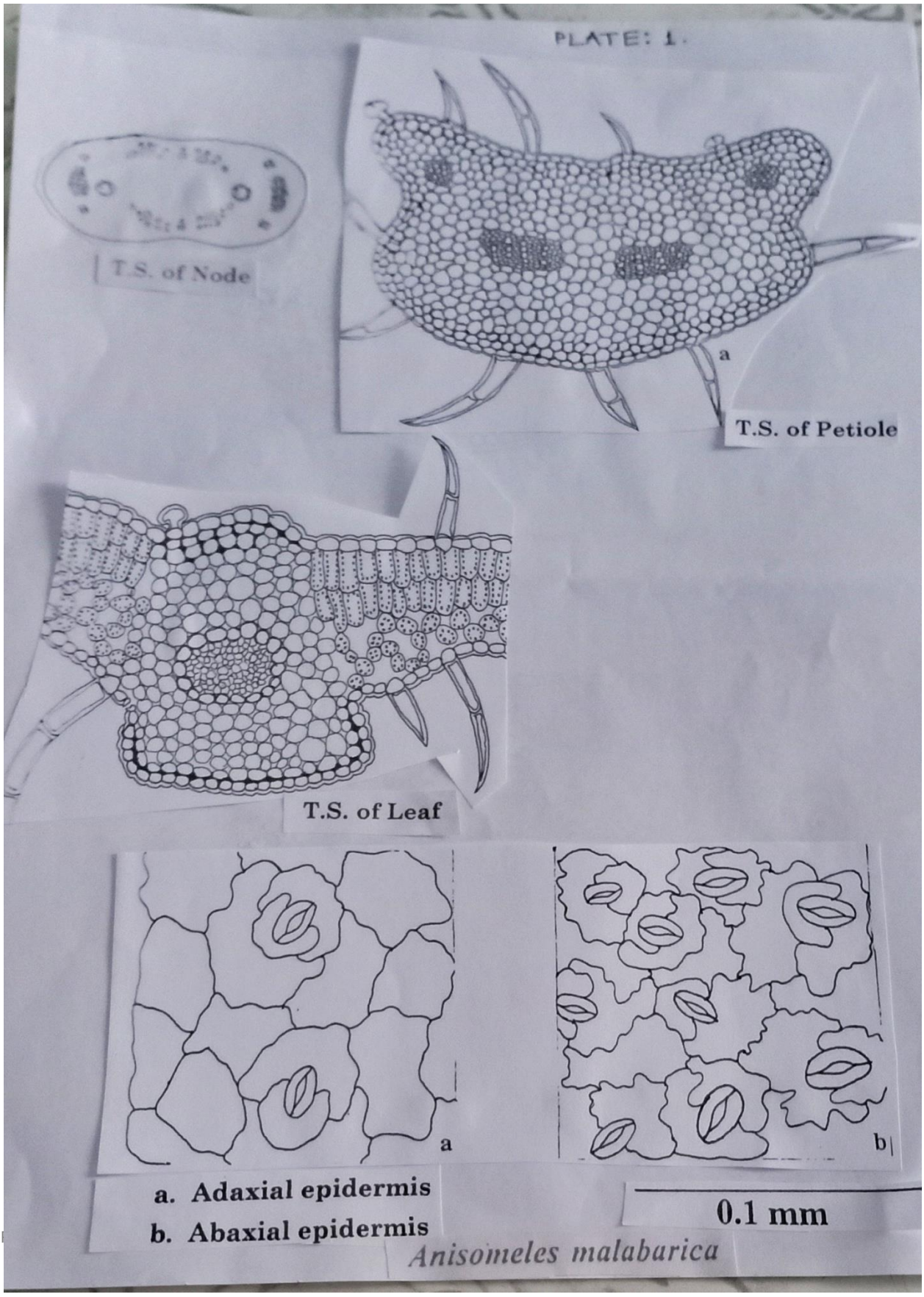

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