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Pharmacognostical studies on *Ipomea reniformis chois*.

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ABSTRACT
Traditionally Mushakparni-*Ipomea reniformis* has been used for epilepsy and various other disorders. Since there is no other data regarding this plant our efforts were devoted to study the morphological, microscopical and preliminary phytochemical profile of *Ipomea reniformis*.

Keywords: Mushakparni, microscopy, epilepsy.

INTRODUCTION

The tribal people use this plant for deobstruent, diuretic, alterative, rheumatism, neuralgia, headache, migraine, purgative, snake and rat bites, ulcer and abscesses. [1-5] *Ipomea reniformis* belonging to family Convulvulaceae is commonly known as Undirkana (ear of rat) and Mushakparni. In Chhatisgarh region this plant is used to treat anemic women. There is no reported pharmacognostic information about this plant. Hence our efforts were directed in this direction.

MATERIALS AND METHODS

The leaves of *Ipomea reniformis* were collected from Latur district and identified by taxonomist at the Dept. of Botany, M.S.S.'s Maharashtra Mahavidyalaya, Nilanga and copy of specimen is deposited as SSC 1.

The morphological studies were done to determine shape, size, apex, base, margin, colour, taste and odour [4]

Microscopical studies were done by preparing a thin section of petiolule, midrib and lamina region of *Ipomea reniformis*. The section was cleared with chloral hydrate solution and then stained with phloroglucinol and hydrochloric acid, mounted in glycerine. A separate section was prepared and stained with iodine solution for the identification of starch grains. [2] The powder of the air dried leaves was used for the observation of microscopical characters. The powdered drug was separately treated with phloroglucinol-hydrochloric acid solution, glycerine and iodine solution to determine the presence of lignified cells, calcium oxalate crystals and starch grains. As a part of quantitative microscopy stomatal number, stomatal index, vein islet and vein termination numbers were determined by using fresh leaves of the plant. [3] The ash value of leaf was carried out. The aqueous as well as ether extract were subjected to preliminary phytochemical Investigation [6] to find out constituents soluble in aqueous and organic solvents.

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RESULT AND DISCUSSION

The detailed pharmacognostic evaluation would give valuable information for further studies.

Morphological Studies

The leaves are simple, thin, reniform with entire margin having auriculate base and retuse apex. The size varies from 2-3 cm in length and width, petiolule 2-5 cm long. The leaf is bitter in taste, green in colour and with characteristic odour. [4]

MICROSCOPIC STUDIES

Petiolule

The ventral surface has a liner furrow and the dorsal surface is circular. The epidermis is composed of single layered, oval cells, many of the epidermal cells elongate to form unicellular covering trichomes. The trichomes have blunt or slightly blunt or slightly pointed ends. Among them blunt trichomes are more prominent. Below the epidermis is a large cortex composed of 8-13 layers of cells. The cortical cells are mostly polyhedral and straight walled. Three bundles of phloem and xylem are present. Two nearly round, small vascular bundles towards the ventral side and one big vascular bundle at the center is present (Fig.1).

The phloem surrounds xylem all-round and represented by phloem parenchyma, sieve tube tissue, and companion cells. The arrangement of vascular bundles is arc shaped and collateral. The xylem cells are lignified and thick walled.

Midrib

The ventral surface of midrib is dome shaped. The epidermis is composed of single layered, oval shaped, thick walled cells. Many of the epidermal cells elongate to form covering trichomes. Below the epidermal layer is a wide cortical region composed of 8-13 layers of cells on ventral side and

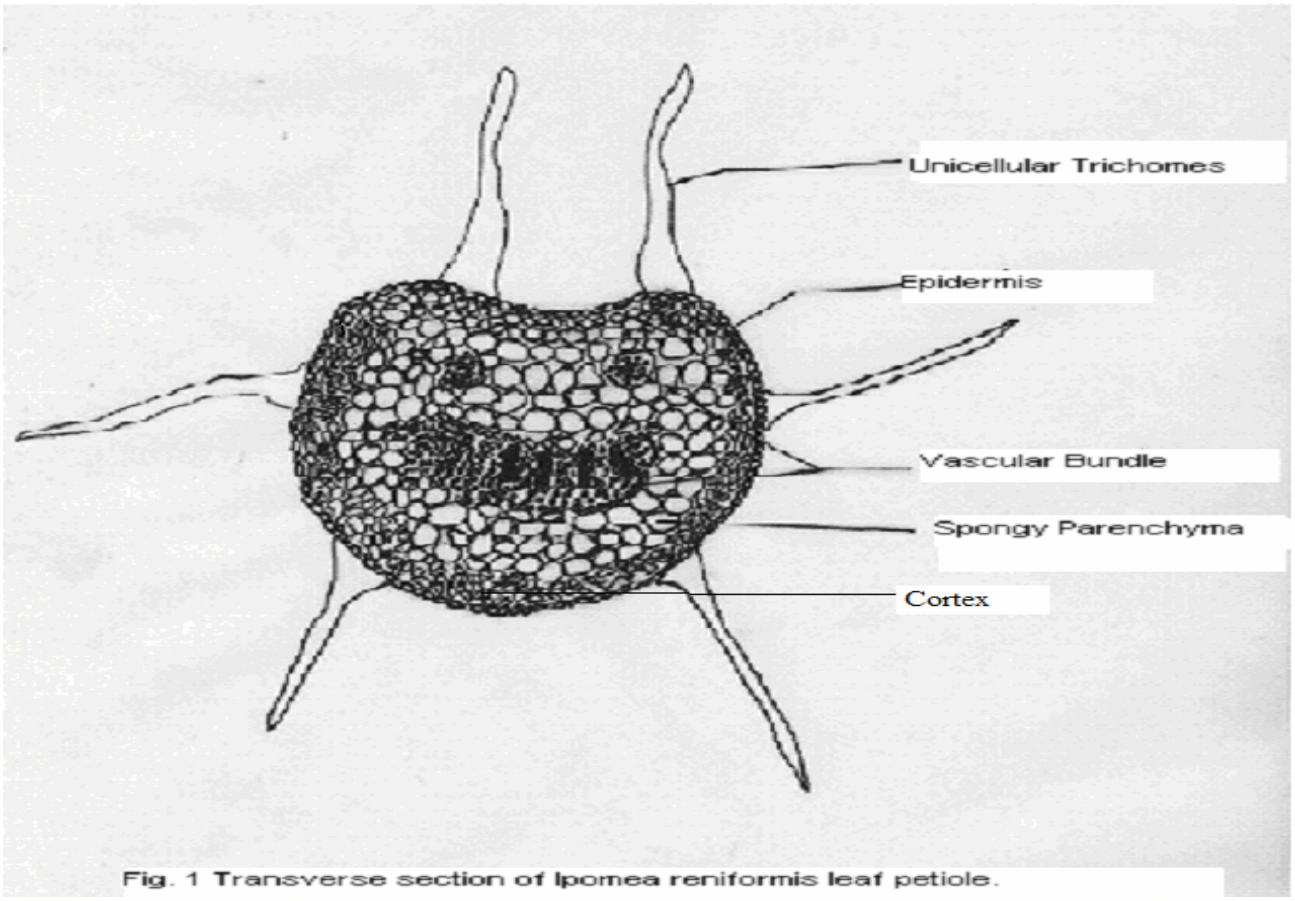

Fig. 1 Transverse section of Ipomea reniformis leaf petiole.

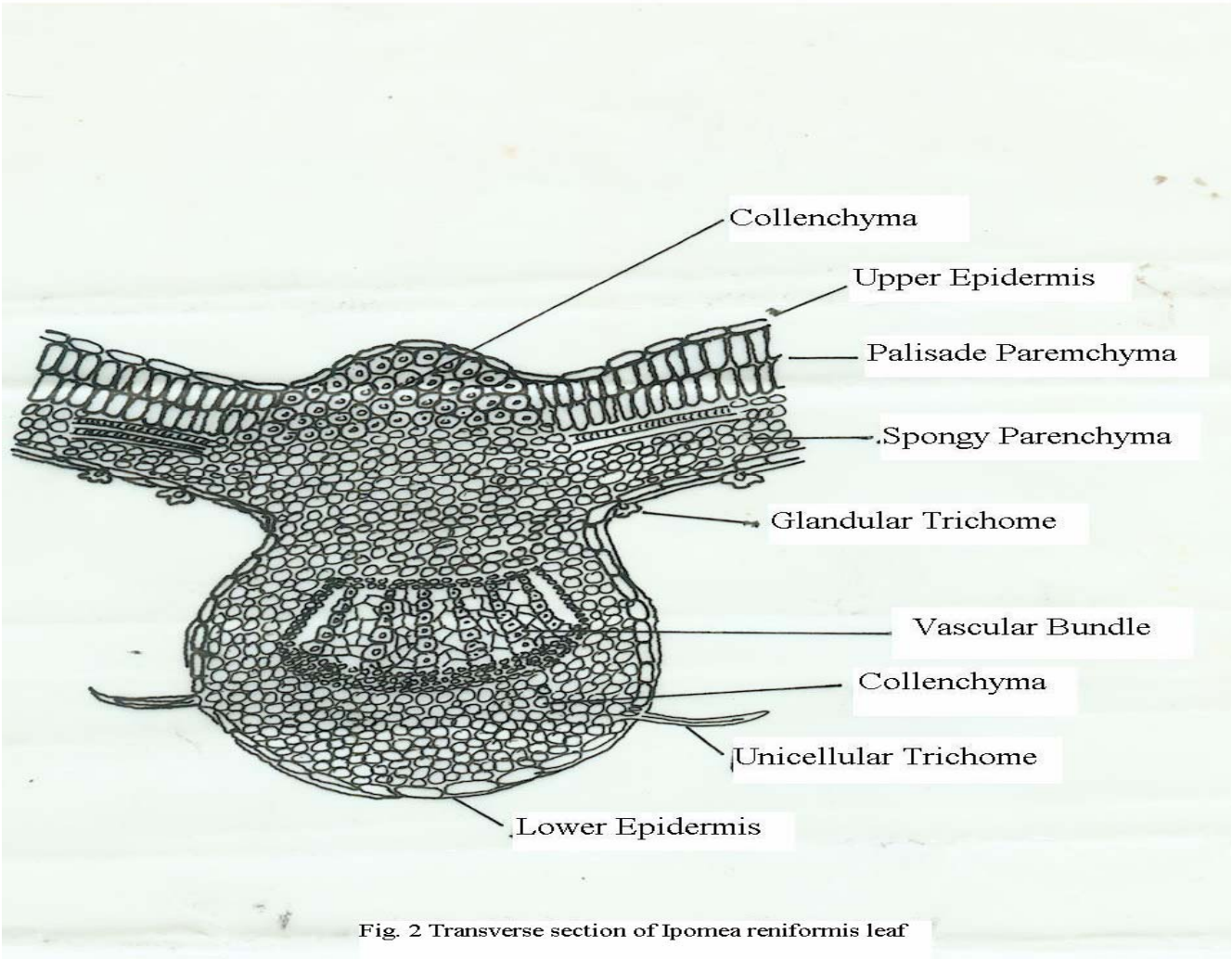

Fig. 2 Transverse section of Ipomea reniformis leaf

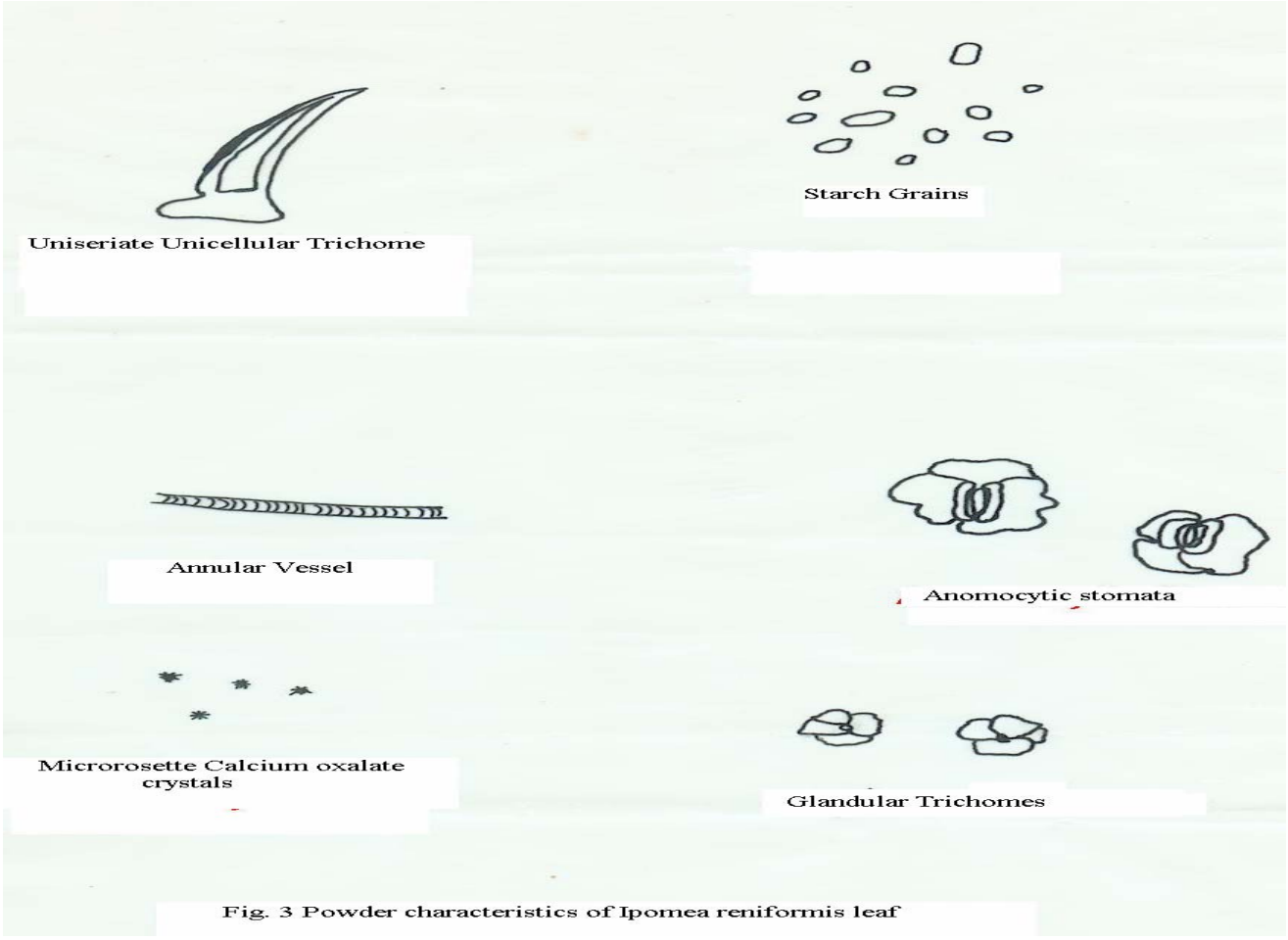

Fig. 3 Powder characteristics of Ipomea reniformis leaf

8-10 layers of cells on dorsal side. The cells are mostly polyhedral and isodimetric to circular in shape. The vascular bundle present at centre is arc shaped and collateral. The phloem surrounds xylem all-round. The xylem cells are lignified and thick walled (Fig. 2). The xylem parenchyma is rectangular.

Lamina

The lamina is dorsi-ventral in structure and represented by double layered palisade tissues on the upper side and spongy tissues on the lower side. The epidermis is represented by oval and thick walled cells elongate to form covering trichomes with blunt ends. The covering trichomes are present on both surfaces and are non- lignified sessile, with quadrangular head. The glandular trichomes are present on lower epidermis (Fig. 2). Below the palisade cells the spongy tissue is present. It is represented by circular to elliptic cells with little intercellular spaces between them. In the spongy mesophyll there are micro rosette types of calcium oxalate crystals. It also shows lignified annular xylem vessels. Stomata occur on both the surfaces. They are of raninculaceous type. The stomata being surrounded by three subsidiary cells, one of them is comparatively large than rest of the two.

Ash value [3]

The leaves were air dried and subjected for Total ash value – 17 % w/w

Powder Characteristics

Result revealed the presence of lignified cells, calcium oxalate crystals and starch grains. [2] (Fig. 3)

Quantitative Microscopy [3]

Table 1

Particulars	Ipomea reniformis
Stomatal number	
Upper Epidermis	91
Lower Epidermis	112
Somatal index	
Upper Epidermis	21.31
Lower Epidermis	20.89
Vein Islet number	8
Vein Termination number	20

Preliminary phytochemical tests [6]

Table No. 2

Extract	Chemical constituents
Aqueous	Amino acids, tannins (condensed tannins, pseudo tannins), starch.
Solvent ether	Fats and fixed oils.

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