



UNIQUE JOURNAL OF AYURVEDIC AND HERBAL MEDICINES

Available online: www.ujconline.net

Research Article

PHARMACOGONOSTICAL EVALUATION OF MUSTA (*CYPERUS ROTUNDUS* LINN)

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Received 19-04-2015; Revised 17-05-2015; Accepted 15-06-2015

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ABSTRACT

Musta (*Cyperus rotundus* Linn.) belongs to the family *Cyperaceae*. It is perennial herbs, 10-75 cm height. It is found throughout India up to an elevation of 1800 m., from Kashmir to Simla, Garhwal and Khasia hills, throughout the plains of almost all the states and ascending the mountains of the Central table- land from Mount Abu and Pune to the Nilghiri hills. It is perennial weed, thrives on all kinds of soils under varying climatic conditions. Regeneration is mainly through underground rhizomes. It is perennial weed, thrives on all kinds of soils under varying climatic conditions. Regeneration is mainly through underground rhizomes. Microscopic study of T.S. of rhizome revealed presence of Epidermis, Cortex, Vascular bundles, Parenchyma cells, Endodermis, Vessels, Oil, Oleoresin, Starch grains, Solitary polygonal crystals. Microscopic study of T.S. of rhizome of *Cyperus rotundus* Linn revealed presence of Epidermis, Cortex, Vascular bundles, Parenchyma cells, Endodermis, Vessels, Oleoresin, Starch grains. The powder of the rhizome was creamish-brown; shows reddish-brown cells, reticulate and simple pitted vessels, fibre-like, closely packed sclerified cells, narrow vessels with scalariform thickness and oblique pore from the remnants of leaves simple, round to oval, starch grains, measuring 6-28 μ in diameter, starch grains, oleoresin content cells and parenchyma cells loaded with starch grains.

Keywords: Pharmacogonostical Evaluation, Musta, *Cyperus rotundus* Linn.

INTRODUCTION

Pharmacognosy is a branch of Pharmaceutical science, which deals with naturally occurring biological products especially those derived from plants. The term Pharmacognosy is derived from two Greek words 'Pharmacon' means drugs and Gignosco or Gnosis - to acquire knowledge. Pharmacognosy of a plant gives a comprehensive knowledge regarding its method of identification and determination of quality and purity of the raw drugs. Every species has its own characteristic features which determine the authenticity of that particular drug. So it becomes helpful to differentiate closely related species of the same genus or the same family. It also enables us to standardize a drug. This is the need of today. Knowledge of the herbs in all their aspects has much importance. (Ch.Su.1/122). He also says that the drug whose name (name) form (rupa) and properties (guna) are not known, or the drug which, though known is not properly administered, will cause disaster. (Ch.Su.1/125).

Raja Nighantukar has given 7 methods for identification of drug. In the current era, in the age of globalization, raw drugs

collection is done by unskilled persons causes doubt in the genuineness and possible adulteration. Unlike the traditional methods the participation of traders in the chain of procurement of drugs, adulteration is increasing day by day when the original genuine material is not available in sufficient quantity. In such instances efforts should be made for a systematic identification by pharmacogonostical methods.

AIMS AND OBJECTIVES

- ♦ To study of microscopic character of the samples of the Rhizomes of Musta (*Cyperus rotundus* L) .To study of microscopic characters of powdered drug of samples of the Rhizomes of Musta (*Cyperus rotundus* L).

MATERIALS AND METHODS

1. Material
2. Collection of Sample
3. Preservation of Sample
4. Pharmacogonostical Study

Materials

Rhizome and Rhizome Powder of the Drug Musta (*Cyperus rotundus* L) have been used for this study. Photomicrographs

& drawing were taken by using Canon digital camera attached to Carl Zeus microscope in Pharmacognosy dept. of I.P.G.T. & R.A., G.A.U., Jamnagar. Microscopic studies of Root (Rhizome) were performed.

Collection of Sample:

The Samples Musta were collected from the Pharmacy of IPGT & RA, GAU, Jamnagar. The authenticity of these samples were confirmed by comparing their characters with various floras and standard herbarium sample available at the Pharmacognosy Laboratory of I.P.G.T. & R.A., G.A.U., Jamnagar with the help of Pharmacognosy unit.

Preservation of Sample:

The Samples Musta (*Cyperus rotundus L*) Rhizomes were preserved in a solution made by the formulation as under,

1. Distilled water 90 %
2. Formaldehyde 05 %
3. Acetic Acid 05 %

Organoleptic character	Musta Churna (<i>Cyperus rotundus Linn.</i>)
Colour	Creamish -Brown
Odour	Pleasant
Taste	Pungent, Bitter

2. Microscopic Study:

Musta (*Cyperus rotundus Linn.*):

T.S. of Rhizome¹:

Epidermis:

Epidermis consists of typical parenchymatous cells with brownish pigments. Hypodermis (3.4a) consists of 2-3 layers of thick walled cells.

Cortex:

Cortex is composed of parenchymatous cells, outer part compact, inner part arenchymatous with large intercellular spaces. Some cells in cortex region contain brownish oleoresinous matter (3.4c) and others starch grains.(3.4e)

Vascular bundles: (3.4b)

Vascular bundles are closely scattered in the pith. Pith is composed of parenchymatous cells containing starch grains and a few filled with oleoresinous contents. Each vascular bundle is enclosed by a lignified fibrous sheath of 1-3 layers. Xylem consists of 12 small vessels adjacent to pericycle and 4 large vessels of unequal size near centre. (3.4d)

Endodermis:

Endodermis consists of uniformly thickened roundish cells.(3.4b)

PHARMACOGNOSTICAL STUDY

1. Organoleptic Study:

The drug evaluated by organoleptic characters like taste, odour, colour.

2. Microscopic Study:

(i) **Root:** Transverse sections taken by free hand and photomicrography had been done after proper mounting and staining.

(ii) **Powder microscopy:** Powder of the drug was studied microscopically and microphotographs were taken by using canon digital camera attached to Carl Zeiss microscope.

OBSERVATION AND RESULTS

1. Organoleptic Study:

Organoleptic characters of root powder of the samples of Musta (*Cyperus rotundus L*) are described as

Powder²:

Creamish-brown; shows reddish-brown cells, reticulate and simple pitted vessels;(3.5d) fibre-like, closely packed sclerified cells, narrow vessels with scalariform thickness and oblique pore from the remnants of leaves simple, round to oval, starch grains, measuring 6-28 μ in diameter, starch grains, oleoresin content cells(3.5b) and parenchyma cells loaded with starch grains.(3.5a).

DISCUSSION

Musta (*Cyperus rotundus Linn.*) belongs to the family *Cyperaceae*. It is found throughout India up to an elevation of 1800 m., from Kashmir to Simla, Garhwal and Khasia hills. It is perennial herbs, 10-75 cm high. Stolon is slender, 10-20 cm long; tubers hard, ovoid, tunicate, black from outside, fragrant, 0.8 to 2.5 cm in diameter, inner surface white, fracture mealy; root fibrous clothed with flexuous hairs. In transverse section the rhizome is characterized by a thick walled endodermis dividing a cortical portion and central ground tissue. The powder of the rhizome is Creamish-brown colour & shows reddish-brown cells.

The Microscopical characters are shown in Table

Musta (<i>Cyperus rotundus Linn.</i>):	
Epidermis	Epidermis consists of typical parenchymatous cells with brownish pigments.
Cortical region	Parenchymatous cells, Vascular bundles are closely scattered in the pith.
Vessel & Fibres	Reticulate and simple pitted, Closely packed sclerified cells, Narrow vessels with scalariform thickness
Oleoresin	Brownish.
Starch grains	round to oval

Plate - 3.4
Photomicrographs of T.S. of Musta:

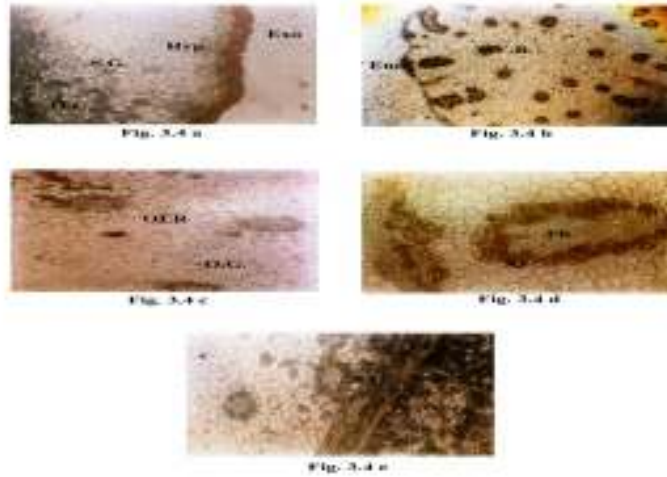
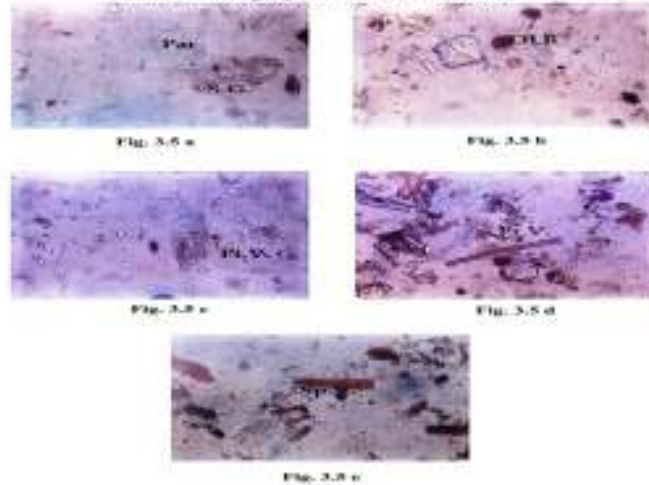


Plate 3.5
Photomicrographs of Musta Powder



CONCLUSION

Musta is identified botanically as *Cyperus rotundus* Linn. Belongs to family *Cyperaceae*.

Microscopic study of T.S. of rhizome of *Cyperus rotundus* Linn revealed presence of Epidermis, Cortex, Vascular bundles, Parenchyma cells, Endodermis, Vessels, Oleoresin, Starch grains. The powder of the rhizome was creamish-brown; shows reddish-brown cells, reticulate and simple pitted vessels, fibre-like, closely packed sclerified cells, narrow vessels with scalariform thickness and oblique pore from the remnants of leaves simple, round to oval, starch grains, measuring 6-28 μ in diameter, starch grains, oleoresin content cells and parenchyma cells loaded with starch grains .

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Source of support: Nil, Conflict of interest: None Declared