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Research Article

Pharmacognostic Evaluation of Leaves of *Meizotropis pellita Wall. Ex Hook, F & Grew. (Patwa)*

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ABSTRACT
Pharmacognostic evaluation of leaves of Meizotropis pellita (Wall. Ex Hook, F & Grew) family Fabaceae (Papiloneaceae), commonly known as Patwa, was done. Organoleptic characters, qualitative microscopy, moisture content, physicochemical ash, soluble extractives, and fluorescence analysis was performed. Starch crystals, Trichomes are present in transverse section of midrib of leaves; nature of stomata was Anomocytic (irregular-celled) in the leaves. Ether soluble extractive signifies the presence of least fraction of fats, lipids and some steroids. Total physiological ash and non-physiological ash content was 6.628+ 0.773%. The silica content, especially as siliceous earth in the ash of leaves was found to be 0.708+ 0.30%. Fluorescence analysis of air dried leaves revealed presence of fluorescence compound.

Keywords: Meizotropis pellita, Physicochemical analysis, Fluorescence analysis.

INTRODUCTION

Meizotropis pellita (Wall. Ex Hook, F & Grew.) commonly known as Patwa, is native species of Patwadanger situated at 12 km away from Nainital District in Uttarakhand. The plant occurs more gregariously on flat hill tops as well as on the vally slopes near dry ridges and in open Chir Forest at around 5000 feet in May-June. Plant Patwa was first reported by Osmoston in 1925 at Patwadanger (1530 m). It was also seen in Kali Kumaun and subsequently its presence was also reported from Dhoti District of Nepal. It is a rare, endangered, endemic plant species1, angiospermous plant, belong to family fabaceae (Papilionaceae). Leaves of the plant are 18-30 inches long1.

This plant has small population and grows in very specialized and sensitive habitats; therefore any change and ecological disturbance may lead its extinction from the region. Pharmacognostic evaluation systematic study of a crude drug

comprises of (i) origin, common names, scientific nomenclature and family, (ii) geographical source (and history), (iii) cultivation, collection, preservation and storage, (iv) macroscopical, microscopical and sensory (organoleptic) characters, (v) chemical composition wherever possible, (vi) Identity, purity, strength and assay, (vii) substitute and adulterants, etc. Such systematic study of a drug as complete as possible, is claimed to be the scientific for pharmacognositical evaluation2.

MATERIALS AND METHODS

The plant Meizotropis pellita was collected from Institute of Biotechnology Patwadanger, Nainital. Authentication and Preparation of herbarium and voucher specimen was deposited in the herbarium section of Biotech Pharmaceutical Lab of Institute of Biotechnology, Patwadanger, Nainital, G.B.Pant University of Agriculture and Technology Pantnager. Plant leaves were allowed to air dry in shade and converted in uniform powder form by using milling machine at room temperature.

Organoleptic characters: Various sensory parameters of the plant material viz. colour, odour, size, shape, and taste

Table: 1. Organoleptic characters of *Meizotropis pellita* leaves.

Colour	Green
Odour	Unpleasant
Taste	Tasteless
Shape	Deltoid
Size	10-30 inches
Surface	Hairy
Apex	Obtuse
Base	Truncate
Margin	Entire

Table: 2. physicochemical analysis of *Meizotropis pellita* air dried leaves.

Loss on drying		15.668± 4.657% w/w
Water soluble extractive	soluble	17.166± 1.04% w/w
Alcohol soluble extractive	soluble	7.5± 1.5% w/w
Ether soluble extractive	soluble	3.2± 1.058% w/w
Total ash		6.628± 0.773% w/w
Water soluble ash		1.252± 0.642% w/w
Acid insoluble ash		0.708± 0.30% w/w

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Table: 3. Fluorescence analysis of air dried powder leave

S.No.	Treatment	Colour observed at 265 nm	Colour observed at 364 nm	Colour observed at visible light
1.	Powder+ 1N NaOH in methanol	Black	Dark green	Green
2.	Powder+ 1N NaOH in water	Black	Light green	Brown
3.	Powder+ 1N HCl in water	Black	Light green	Brown
4.	Powder+ 50% H2SO4	Black	Shining green	Green
5.	Powder+ Alcoholic KOH	Black	Shining green	Green

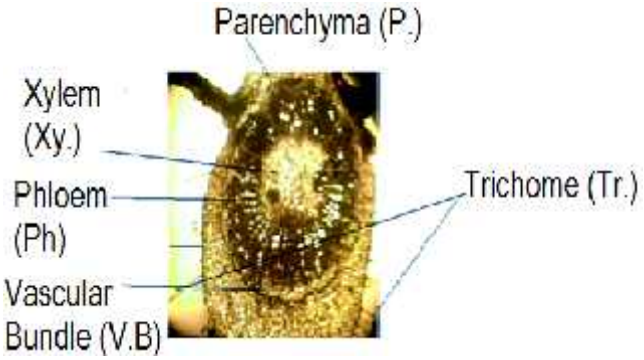

Fig 1. T.S of Midrib of leaf of Meizotropis
Caption: P. Parenchyma, Xy. Xylem, V.B. Vascular Bundle, Tr. Trichome.

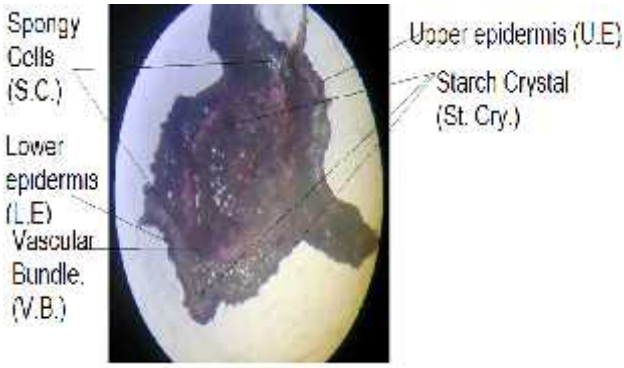

Fig 1.1 Staining with safranin and Iodine Solution. (T.S. of Midrib of leaf)
Caption: S.C. Spongy cells, L.E. Lower epidermis, V.B. Vascular bundle, U.E. Upper epidermis, St. Cry. Starch Crystal.

Fig 2. Stroma surrounded by varying no of cells (subsidiary cells), hence Stomata were Anomocytic (irregular cells)
Caption: Sb.C. Subsidiary cells, S. Stroma, G.C. Guard cells.

were studied by organoleptic evaluation3.

Physico-chemical analysis: The physicochemical parameter included Ash values (water soluble ash, alcohol soluble ash), moisture content (loss on drying), extractive values (alcohol soluble, water soluble and ether soluble) done as per reference procedure2.

Microscopy: Transverse section of leaf midrib and nature of stomata were studied miscroscopically.

Fluorescence analysis: Fluorescence nature of air dried powder material was analyzed using different reagents in UV-Visible chamber under visible light and UV light at 264 nm and 365 nm using standard method.4-5

RESULTS AND DISCUSSION

Organoleptic characters of leaves revealed that it has green colour, unpleasant odour, tasteless. (Table1). The physicochemical analysis of powdered leaves sample revealed that loss on drying was 15.668+ 4.657% w/w, water soluble extractive was 17.166+ 1.04% w/w, alcohol soluble extractive was 7.5+ 1.5% w/w, ether soluble extractives 3.2+ 1.058% w/w, Total ash 6.628+ 0.773% w/w, acid insoluble ash 1.252+ 0.642% w/w, water soluble ash 0.708+ 0.30% w/w (Table 2).

Microscopical examination of transverse section (T.S.) of midrib showed starch crystal, parenchyma, glandular trichomes, pith, and epidermal cells vascular bundle (fig: 1, fig. 1.1) Nature of stomata of leaves of Meizotropis pelleta was found to Anomocytic (irregular-celled) in nature (fig: 2)

The fluorescence analysis of air dried powder material showed the presence of fluorescent compound (Table 3).

Pharmacognostic evaluation of leaves evaluate great achievement in field of standardardization. According to Ayurvedic pharmacopoeia of India testing of crude drug plant material, above parameter are require to evaluate a crude drug material. This study shows the Organoleptic characters of leaves, visual inspection provides the simplest and quickest mean by which to establish identity, purity and, possibly quality6, Anomocytic (irregular-celled) stomatal nature was found in qualitative microscopy, a Significance range is found in Moisture content of air dried material of leaves. Total ash value helped to determine physiological ash (plant tissue part) and non-physiological ash (residue of extraneous matter). Acid insoluble ash used to major amount of silica present, especially as sand and siliceous earth6. A significant total ash was found having low content of acid insoluble ash. Water soluble extractive value plays an important role in

evaluation of crude drugs. Less extractive value indicates addition of exhausted material, adulteration or incorrect processing during drying or storage or formulating7, the water soluble extractive value shows the powder material was properly processed during processing, ether soluble extractive values signifies the presence of fats, lipids, and some steroids in the drug2.

CONCLUSION

Study helps to identify the drug, and also helps to check the quality and adulteration in the drug

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