International Journal of Plant Sciences (2006) **1** (2) : 211-213

Pharmacognostical and preliminary phytochemical studies on leaves of *Emblica officinalis* Gaertn

EDWIN. E*, SHEEJA. E, GUPTA. S. AND JAIN. R.
*Department of Pharmacognosy & Phytochemistry, B.R. Nahata College Pharmacy, Mhow-Neemuch Road, Mandsaur – 458001 (M.P.) India

(Accepted : April, 2006)

SUMMARY

The plant Amla (*Emblica officinalis* Gaertn.) belonging to the family Euphorbiaceae, have a great medicinal value. So far proper pharmacognostical and phytochemical studies are not been reported for the leaves. In this direction our efforts were devoted to determine the pharmacognostical and preliminary phytochemical properties of this plant. Pharmacognostical evaluation included examination of morphological and microscopical characters, determination of leaf constants (stomatal number, index, veinislet and vein termination nos), determination of physiochemical constants (ash values). Phytochemical screening included, qualitative chemical examinations, determination of % yield and extractive values. The studied characters would be an useful tool to identify this plant by its Pharmacognostical characters.

Key words: *Emblica officinalis*, Euphorbiaceae, Amla

India is one of the richest floristic regions of the world and has been a source of plants and their products since antiquity and man uses them in different ways according to his needs, particularly as food and medicine. Among the entire flora, 35,000 to 70,000 species have been used for medicinal purposes (Ponnu et al, 2003). The plant *Emblica officinalis* Gaertn (Euphorbiaceae) commonly known as amla is used as antioxidant, antidiabetic (Sabu and Kuttan, 2002), immunomodulatory (Ganju et al, 2003), antitussive (Nosalova et al, 2003), antihyperlipidemia (Augusti et al, 2001), etc. The main constituents in the plant are vitamins (Nadkarni KM, 2000), flavonoids (Anila and Vijayalakshmi, 2002), tannins (Khan et al, 2002), etc. The main parts used in this plant are fruits and leaves. So far proper pharmacognostical and phytochemical studies are not been reported for the leaves. Therefore our efforts were devoted in this direction to study the pharmacognostical and phytochemical aspects of *Emblica officinalis*.

MATERIALS AND METHODS

The plant materials (leaves) of *Emblica officinalis*. Gaertn were collected in Mandsaur and was positively identified and confirmed by botanist in the KNK College of Horticulture, Mandsaur.

Pharmacognostical Studies:

Morphological studies were done using simple microscope. The shape, apex, base, margin, taste and odour of leaves were determined. Microscopical studies were done by preparing a thin section of midrib and lamina region of *Emblica officinalis*. The section was cleared with chloral hydrate solution and then stained with phloroglucinol and hydrochloric acid, mounted in glycerin. A separate section was prepared and stained with iodine solution for the identification of starch grains. The powders of the dried leaves were used for the observation of powder microscopical characters. The powdered drug was separately treated with phluroglucinol - Hcl solution and iodine solution to determine the presence of lignified cells and starch grains (Kokate CK, 1994).

As a part of quantitative microscopy, stomatal number, stomatal index, vein islet, vein termination numbers were determined by using fresh leaves of the plant. Ash values are used to determine the quality and purity of the crude drug. Total ash and acid insoluble ash were determined. Alcohol and water-soluble extractive values were determined to find out the amount of water and alcohol soluble components (Kokate, 1994; Indian Pharmacopoeia, 1985).

Phytochemical Studies:

The dried powder material was initially defatted with petroleum ether (60-80^0 C) in a soxhlet apparatus for 72 hrs and successively extracted with, chloroform, ethanol and water for 72 hrs. The extracts were filtered while hot and solvent removed by distillation under reduced pressure and the percentage yields of the extracts were calculated.

The concentrated Pet. ether, (60-80^{0}C), chloroform, ethanol and water extracts of the leaves were subjected to chemical test for the identification of the various active constituents (Harborne JB, 1988; Mohammed A, 1994; Agarwal OP, 2000).

RESULTS AND DISCUSSION

The morphological studies revealed the shape of leaves as linear, with entire margin, cordate base, obtuse apex, and size varying from 1.5-2.5 cm long and 0.5-0.7 cm wide. In the microscopical studies the plant showed the presence of anomocytic type of stomata on epidermis and absence of trichomes. Mesophyll shows dorsiventral leaf structure. Single layer of elongated palisade cells below

*Author for correspondence