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PHARMACOGNOSTIC STUDIES OF THE SEED OF *SYZYGIUM*
***CUMINI* LINN**

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ABSTRACT

Jamun is a very common, large evergreen beautiful tree of Indian subcontinent. The scientific name of Jamun is *Eugenia jambolana* Lam or *Syzygium cumini* Linn belongs to the family myrtaceae. The seed of *Syzygium cumini* is considered as an antidiabetic in folklore medicine. In present investigation, the detailed pharmacognostic study of *Syzygium cumini* leaf is carried out to lay down the standards which could be useful in future experimental studies. The study includes macroscopy, microscopy, preliminary phytochemical screening and physicochemical evaluation.

Key words: *Syzygium cumini*, Pharmacognosy, Microscopy.

INTRODUCTION

Herbal medicines are promising choice over modern synthetic drugs. They show minimum or no side effects and are considered to be safe. Generally herbal formulations involve use of fresh or dried plant parts. Correct knowledge of such crude drugs is very important aspect in preparation, safety and efficacy of the herbal product. Pharmacognosy is a simple and reliable tool, by which complete information of the crude drug can be obtained ^[1-4]. *Syzygium cumini* Linn (family Myrtaceae), commonly known as Jaman (Hindi), is a medicinal plant and utilizable species. Common names are Java plum, Black plum, Jambul and Indian Blackberry ^[5-6]. The original home of jamun is India, distributed throughout India, in forest up to 1800m usually along the bank and moist localities. The seeds are sweet, astringent to bowels and good for diabetes. The sprouts are refrigerant, carminatives & astringent to bowels. Powdered seeds are used

as a remedy in diabetes and in metrorrhagia [5-7]. As per Unani system of medicine they acts as liver tonic, enriches blood, strengthens teeth and gums and forms good lotion for removing ringworm infection of the head.

Seeds of *E. jambolana* contain glycosides, a trace of pale yellow essential oil, fat, resin, albumin, chlorophyll2, an alkaloid- jambosine3, gallic acid, ellagic acid, corilagin and related tannin,3,6-hexahydroxydiphenoylglucose and its isomer 4,6-hexahydroxydiphenoylglucose, 1-galloylglucose, 3-galloylglucose, quercetin and elements such as zinc, chromium, vanadium, potassium and sodium .Unsaponifiable matter of seed fat contains β -sitosterol .

Various extracts of fruit and seeds of *Syzygium cumini* were found to have antidiabetic, antiinflammatory, hepatoprotective, antihyperlipidemic, diuretic and antibacterial activities. These properties of *Syzygium cumini* seed have been attributed to its saponins, tannins and flavonoids. [8-10]. In literature details of morphology, phytoconstituents, medicinal properties and uses of *Syzygium cumini* is very sparse therefore, in present study pharmacognostic standards of the seeds of *Syzygium cumini* are studied. These standards are of utmost importance not only in finding out genuity, but also in detection of adulterants in marketed drug and as well in formulation.

MATERIALS AND METHODS

The dried seeds of *Syzygium cumini* Linn were collected in January, 2008, from Modasa, Gujarat, India. The plant was identified and authenticated by Dr. M.S. Jangid, Botany Department, Sir P. T. Science College, Modasa, Gujarat, India and a voucher specimen was deposited. In the college, the microscopic characters of this plant was studied and compared with available literature as mentioned above. . The seeds were separated from the *Syzygium cumini* fruits. The seeds were dried in shade and stored at 25⁰C. It was powdered, passed through 40# and stored in air tight bottles. An exhaustive Pharmacognosy was carried out using standard methodology [11-22].

MACROSCOPIC STUDY

Seeds are cream colored, coriaceous, covering, smooth, oval or roundish. Each fruit contains a single seed 1 to 2 cm long or 2 to 5 seeds compressed together into a mass resembling a single seed. The whole seed enclosed in a cream colored coriaceous covering, smooth oval or roundish.

TABLE .1 PHYSICOCHEMICAL EVALUATIONS:

Extractive Value	
Alcohol soluble extractive	14 %W/W
Water soluble extractive	22 %W/W
Petroleum-ether soluble	28 %W/W
Chloroform soluble extractive	36 %W/W
Loss on drying	4.02 %W/W
Ash Values	
Total ash	4.8 %W/W
Water soluble ash value	3.2 %W/W
Acid-insoluble ash value	1.2 %W/W

MICROSCOPY

Transverse section of *Syzygium cumini* seed showed following features-

Epidermis: Three to four layered epidermis

Mesophyll: It is composed of isodiametric thin walled parenchymatous cells which are fully packed with simple starch grains

Few schizogenous cavities are found which contain oil drops and Polygonal cells of testa.

Powder study of the Jamun Seed powder

Colour : Brown in color

Parenchymatous cell : Oval shape parenchymatous cells are present

Starch grain : Round starch grains are present

Testa is and Endosperm

RESULT AND DISCUSSION

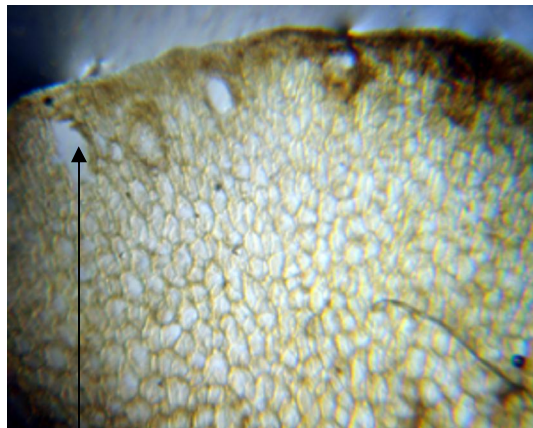
The pharmacognostic standards for the seeds of *Syzygium cumini* are laid down for the first time in this study. Morphological and anatomical studies of the seed will enable to identify the crude drug. The information obtained from preliminary phytochemical screening will be useful in finding out the genuity of the drug. Ash values,

extractive values can be used as reliable aid for detecting adulteration. These simple but reliable standards will be useful to a lay person in using the drug as a home remedy. Also the manufacturers can utilize them for identification and selection of the raw material for drug production.

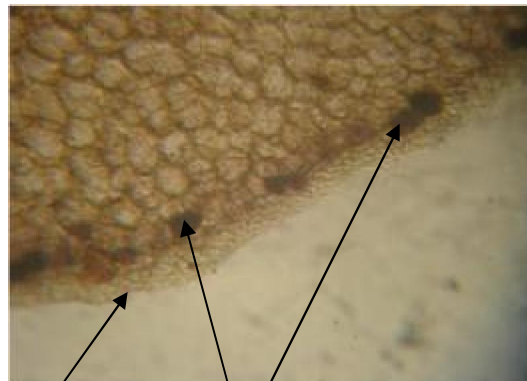
TABLE. 2. PRELIMINARY PHYTO-CHEMICAL SCREENING.

Sr. No.	Phytochemical Nature	Jamun (95%v/v Alcohol extract)
1	Acidic compound	-
2	Aleurone grains	-
3	Alkaloids	+
4	Proteins & Amino acids	+
5	Carbohydrates	-
6	Flavonoids	++
7	Phenols	++
8	Glycosides	+
9	Saponins	+
10	Tannis	++
11	Steroids	+
12	Triterpenoids	+
13	Fixed oils & Fats	-

(+)= present (++)=present in more quantity (-)= absent

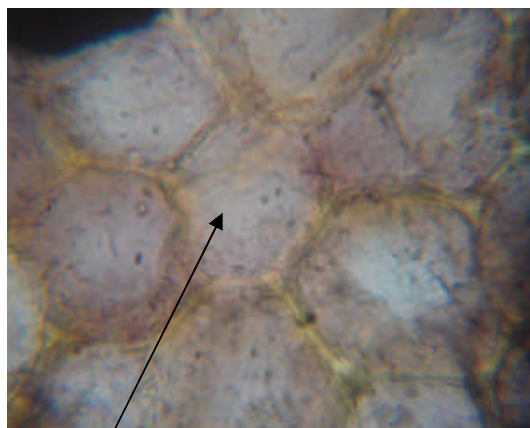


Schizogenous cavities

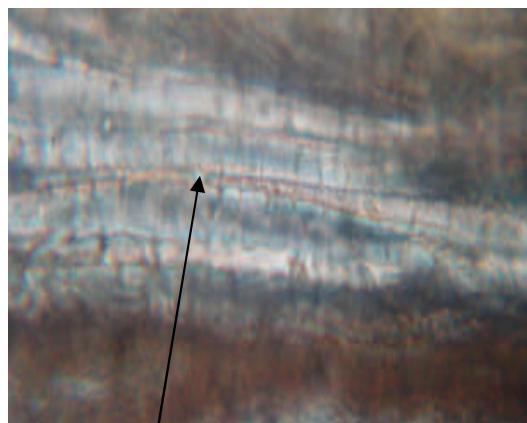


Epidermis

Starch grains

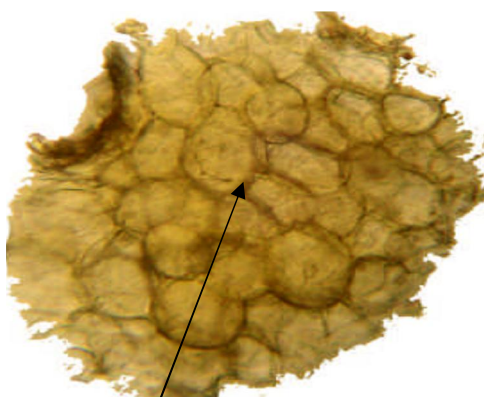


Mesophyll

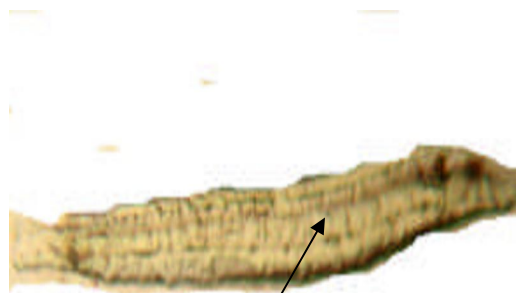


Testa

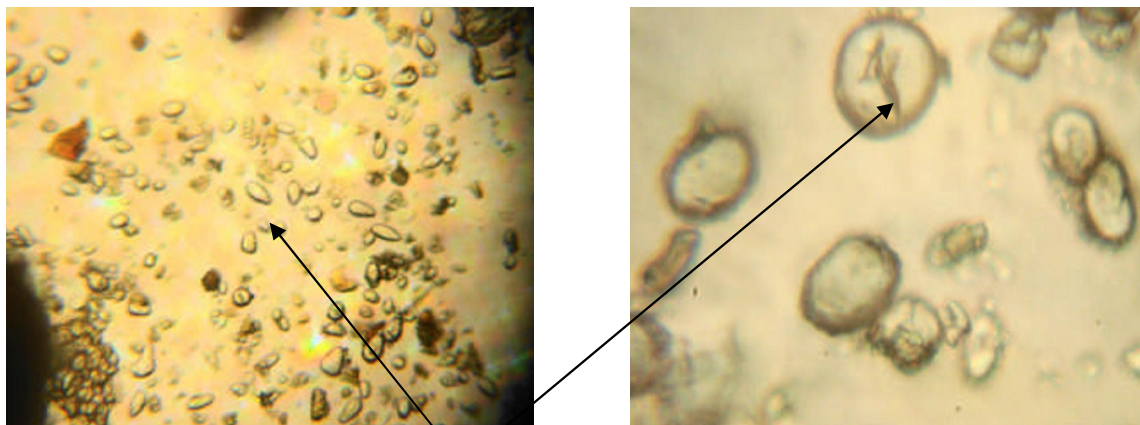
Powder study of the Jamun seed



Endosperm



Testa



Starch grains (10x and 45x)

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