PREMILINARY PHARMACOGNOSTICAL STANDARDIZATION OF CARACA PAPAYA LINN: SEED

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ABSTRACT

Carica papaya Linn. (Family –caricaceae) also known as papaya is a tropical fruit cultivated on a large scale in India and other part of the world. The whole plant parts possess numerous medicinal properties. It provides many benefits for health due high content of phytoconstituent in it. papaya possess numerous pharmacological activities like Anti-inflammatory antihypersensivity hypoglycemic hypolipidemic free redical scavengering wound healing antitumor antibacterial antifungal diuretic uterotonic antisickeling anthelmintic anti-amoebic antifertility etc. The seed was collected and dried from the ripe fruits. Microscopy evaluation covers study of the constituents by application of chemical method total quantity of powered drug. Histological section of the drug microchemistry or chemo microscopy.

KEYWORD: Carica papaya, photochemical screening.

1. INTRODUCTION

This group consists of about 25 species of semi-succulent trees native to tropical America. These trees have straight trunks and are topped with palmate leaves. The most popularly grown species is C. papaya, commonly known as the Papaya, Melon Tree (though technically it is a large herb) or Pawpaw (Note: Pawpaw is also the common name of an entirely different fruit called Asimina.) The Papaya is a short-lived, evergreen plant that can grow up
to 25 feet high. Its hollow, fleshy, green or purplish trunk is marked with leaf scars. The Papaya rarely branches. The leaves grow in a spiraled cluster directly from the upper part of the stem on horizontal petioles (leaf stalks) 1 to 3½ feet long. The leaves are deeply divided and range in width from 1 to 2 feet. The life of a leaf is 4 to 6 months. Male and female flowers are produced on different plants, though there are hermaphrodite forms in cultivation as well as forms that bear both male and female flowers on the same plant. The flowers are fleshy and waxy and have a light scent. The blossoms are followed by deliciously edible fruits, which, although technically a berry, resemble melons. They have yellowish, thin skin and yellowish, peach, or orange to orangish-red flesh with a central cavity filled with small, pea-like, black seeds. The fruit tastes like a combination of melons and peaches. Although these trees are grown mainly for their fruit, all parts of the tree contain latex from which papain, a digestive enzyme, is extracted. Papain breaks down protein in meat to make it tender; therefore Papaya can be used as a meat tenderizer.\[1\]

1.1 Morphology or Organoleptic Evaluation
It refer to evaluation of drug by colour odour taste size shape and special feature like touch texture etc it is a technique of qualitative evaluation based on the study of morphology and sensory profile of whole drug organoleptic evaluation means conclusion drawn from impression of senses the general appearance of the lot of crude drug often indicate whether it is likely to comply with prescribed standard such as presented seed in carica papaya.\[2\]

2. MATERIAL AND METHOD

2.1 Preliminary Pharmacognostic Characteristics
Medicinal plant materials are categorized according to sensory, macroscopic and microscopic characteristics. An examination to determine these characteristics is the first step towards establishing the identity and the degree of purity of such materials, and should be carried out before any further tests are undertaken. Visual inspection provides the simplest and quickest means by which to establish identity, purity and, possibly, quality. If a sample is found to be significantly different, in terms of colour, consistency, odour or taste, from the specifications, it is considered as not fulfilling the requirements. However, judgment must be exercised when considering odour and taste, owing to variability in assessment from person to person or by the same person at different times. Macroscopic identity of medicinal plant materials is based on shape, size, colour, surface characteristics, texture, fracture characteristics and appearance of the cut surface. However, since these characteristics are judged subjectively
and substitutes or adulterants may closely resemble the genuine material, it is often necessary to substantiate the findings by microscopy and/or physicochemical analysis.\[2\]

### 2.2.1 Procedures

**Size:** A graduated ruler in millimeters is adequate for the measurement of the length, width and thickness of crude materials. Small seeds and fruits may be measured by aligning 10 of them on a sheet of calibrated paper, with 1 mm spacing between lines, and dividing the result by 10. **COLOUR** Examine the untreated sample under diffuse daylight. If necessary, an artificial light source with wavelengths similar to those of daylight may be used. The colour of the sample should be compared with that of a reference sample.\[3\]

**Surface Characteristics, Texture and Fracture Characteristics:** Examine the untreated sample. If necessary, a magnifying lens (6x to 10x) may be used. Wetting with water or reagents, as required, may be necessary to observe the characteristics of a cut surface. Touch the material to determine if it is soft or hard; bend and rupture it to obtain information on brittleness and the appearance of the fracture plane - whether it is fibrous, smooth, rough, granular, etc.\[4\]

**Odour:** If the material is expected to be innocuous, place a small portion of the sample in the palm of the hand or a beaker of suitable size, and slowly and repeatedly inhale the air over the material. If no distinct odour is perceptible, crush the sample between the thumb and index finger or between the palms of the hands using gentle pressure. If the material is known to be dangerous, crush by mechanical means and then pour a small quantity of boiling water onto the crushed sample in a beaker. First, determine the strength of the odour (none, weak, distinct, strong) and then the odour sensation (aromatic, fruity, musty, mouldy, rancid, etc.). A direct comparison of the odour with a defined substance is advisable (e.g. peppermint should have an odour similar to menthol, cloves an odour similar to eugenol).

**Taste:** This test should be applied only if specifically required for a given plant material.

### 3. MICROSCOPIC CHARACTERISTICS

Microscopic inspection of medicinal plant materials is indispensable for the identification of broken or powdered materials; the specimen may have to be treated with chemical reagents. An examination by microscopy alone cannot always provide complete identification, though when used in association with other analytical methods it can frequently supply invaluable
supporting evidence. Once the material has been examined and classified according to external characteristics, inspection by microscopy can be carried out as the next step.\textsuperscript{[5]}

### 3.1 Equipment

The following are required

A microscope equipped with lenses providing a wide range of magnification and a substage condenser, a graduated mechanical stage, objectives with a magnification of 4x, 10x, and 40x, and colour filters of ground glass, blue-green; high eye point eyepieces are preferred for wearers of spectacles; a lamp, either separate or incorporated into the microscope; a set of polarizing filters; a stage micrometer and an ocular micrometer to be inserted into a 6x eyepiece and placed on the diaphragm or, preferably, a micrometer eyepiece; a set of drawing attachments for the microscope; a micro burner (Bunsen type); slides and cover-glasses of standard size; a set of botanical dissecting instruments. Any water-soluble contents can be removed from the cells by soaking in water. Starch grains can be gelatinized by heating in water. In certain cases, material can be moistened with water for a few minutes to soften the surfaces and allow sections to be cut.

### 3.2 Powder Characteristic-

In present study the dried Carica papaya Linn. leaves were pulverized into fine powder separately. The powder was investigated for their microscopic characteristic.\textsuperscript{[6]}

**Procedure:** The pulverized powder of dried seed was boiled separately with chloral hydrate solution in small quantity. Remove cleaved powder in three separate watch glass respectively and stain with one drop each of phloroglucinol and concentrated hydrochloric acid. Mount a little of the treated powder in dilute glycerin and observed the slide under microscope at low power. The morphological studies and the analysis of the seed powder of the revealed that, it is dark red in colour with characteristic odour and test, and having parenchymatous cells, xylem, phloem, fibers, calcium oxalate crystals, and starch grain the transverse section of the leaf showed the presence of epidermis, cortex, endodermis, pericycles, trichomes, xylem and phloem.\textsuperscript{[7]}

**Standardization**

In the present study, the plants were collected. After authentication, leaves were dried at room temperature until they were free from the moisture and subjected to physical evaluation with different parameters. The parameters which were used for evaluation are nature, odour,
colour, taste and texture. Finally leaves were subjected to size reduction to get coarse powder and then passed through sieve no. 40 to get uniform powder. Then the uniform powder was subjected to standardization with different parameters.

4. RESULT AND DISCUSSION

Carica papaya Linn ; seed was collected from tree as ripe fruit pawpaw then reveal out the ripe seed and then dried in sunlight then with the help of mortar pestle make acoarse formed and sieve and extraction process followed.

Macroscopic characteristics: - macroscopic evaluation of carica papaya Linn.was observed.

Macroscopic characteristics of carica papaya Linn.
Condition : Fresh ripe seed
Size : 0.2-0.5 cm diameter & 2-5cm long
Shape : Oval
Colour : Reddish brown
Odour : Characteristics aromatic
Test : Bitter
Texture : Rough
Singh et al.  World Journal of Pharmacy and Pharmaceutical Sciences

![Eugeno](Eugeno_Vol2018.jpg) of Volatile Oil

![Cuticle Oil Gland](Cuticle_Vol2018.jpg)

![Aleurone Grain](Aleurone_Vol2018.jpg)

![Starch Grain](Starch_Vol2018.jpg)

Fig: Powder Microscopy of Carica Papaya Seeds.

Table: Powder Microscopic Characteristics of Carica Papaya Linn.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>REAGENT</th>
<th>OBSERVATION</th>
<th>INERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Powder + phloroglucinol + conc. HCL</td>
<td>Red colour</td>
<td>Lignified tissue present</td>
</tr>
<tr>
<td>2.</td>
<td>Powder + dil. Iodine + conc. Sulphuric acid</td>
<td>No colour produce</td>
<td>Hemicellulloses cell absent</td>
</tr>
<tr>
<td>3.</td>
<td>Powder + prepared picric acid solution in alcohol</td>
<td>Yellow colour produce</td>
<td>Aleurone grain present</td>
</tr>
<tr>
<td>4.</td>
<td>Powder 60% sulphuric acid</td>
<td>Squire shaped</td>
<td>Calcium oxylate crystal present</td>
</tr>
<tr>
<td>5.</td>
<td>Powder + Strong KOH soloution</td>
<td>Round shape</td>
<td>Eugenol of volatile oil present</td>
</tr>
<tr>
<td>6.</td>
<td>Powder + sudan red 3</td>
<td>Red colour</td>
<td>Cutical oil present</td>
</tr>
<tr>
<td>7.</td>
<td>Powder routhenium red</td>
<td>Pink colour</td>
<td>Mucilage cell absent</td>
</tr>
<tr>
<td>8.</td>
<td>Powder + dilute Iodine</td>
<td>Dark red green</td>
<td>Starch grain present</td>
</tr>
</tbody>
</table>

5. RESULT AND DISCUSSION

The present study was aimed to pharmacognostical of Carica papaya Linn. seed family caricaceae. In morphological characters like size: 0.2-0.5 cm diameter & 2-5cm long, shape: oval, colour: reddish brown, odour: characteristic aromatic, taste: bitter, and texture: rough. In powder microscopic studied Lignified tissue, Aleurone grain, Calcium oxylate crystal, Eugenol of volatile oil, Cutical oil present and Starch grain present.
6. CONCLUSION
In the present study, the seed of Carica papaya Linn. (Papita) belongs to the family Caricaceae were collected and authenticated. The seed was subjected to size reduction to get coarse powder In morphological characters like size, shape, colour, odour: characteristic, taste and texture. In powder microscopic studied Lignified tissue, Aleurone grain, Calcium oxylate crystal, Eugenol of volatile oil, Cutical oil present and Starch grain present.

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