



## POWDER MICROSCOPY AND PHOTOMICROGRAPHY STUDY OF *BUTEA MONOSPERMA* GUM.

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### Abstract

The powder microscopy and photomicrography study was carried out on the gum of *Butea monosperma* (Lam.) Taubert belonging to the family leguminaceae, which showed the largest body of the mucilage is 400  $\mu\text{m}$  in diameter, pollen grain was upto 40  $\mu\text{m}$  in diameter and the largest crystal of calcium oxalate was 110  $\mu\text{m}$  thick in rhomboidal to polyhedral in shape when seen under the polarised light.

**Key-word:** *Butea monosperma*, pollen grain, calcium oxalate, rhomboidal, polyhedral.

### Introduction:

*Butea monosperma* (Palas), is a medium-sized deciduous tree belongs to family Leguminosae-Papilionaceae. This tree is also called 'Flame of the Forest' and Bastard Teak. It grows throughout the Indian subcontinent, especially in Indo-Gangetic plains.<sup>1, 2</sup> The gum from the tree, called kamarkas in Hindi, is used in certain food dishes. The gum is also known as Bengal Kino, and is considered valuable by druggists because of its astringent qualities,

depurative and useful in diarrhoea, haemorrhoids, haemoptysis, haematemesis, leprosy, skin diseases and by leather workers because of its tannin.<sup>3,4,5.</sup>

Literature revealed that powder microscopy and photomicrograph studies have not been done for the gum of this plant. Therefore the main aim of the present work is to study the powder microscopy and photomicrograph of *Butea monosperma* gum.

### Material and Methods

#### Plant Material

The plant specimens for the study were collected from the Bastar region of Chhattisgarh, India, and were positively identified and authenticated by the Botanist Dr. N. Shiddhamallaya, Regional Research Institute (Ay.), Central council for research in Ayurveda and Siddha, Ashoka pillar,

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Jayanagar, Bangalore. A voucher specimen no. is (RRCBI/mus.5-27).

### **Powder Microscopy**

Powder treated with chloral hydrate solution and water, stained and observed under the microscope for different fragments of tissues. Different fragment of tissues were photographed for identifying the diagnostic characters of the drug powder.

### **Photomicrograph**

Microscopic descriptions of selected tissues were supplemented with micrographs. Photographs of different magnifications were taken with Nikon Lab Photo 2 (Two) Microscopic unit. For normal observations, bright field was used. For the study of calcium oxalate crystal polarized light was employed. Since these structures have birefringent property under polarized light they appear bright against dark background

### **Result and Discussion :**

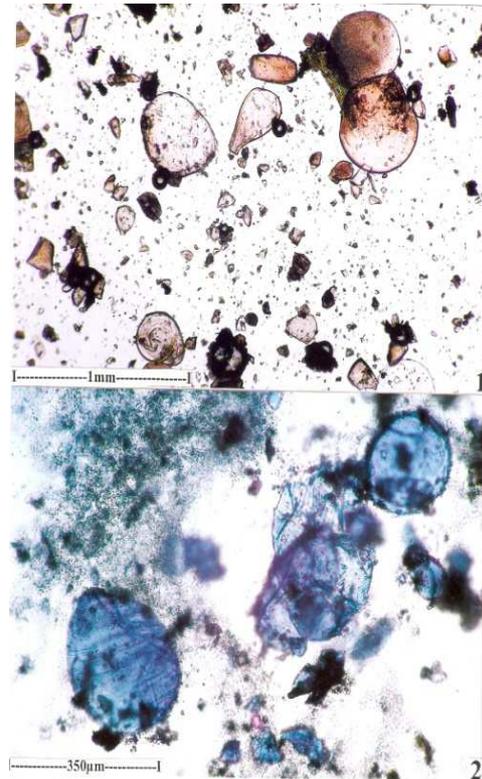


Figure : 1. Mucilage bodies stained with safranin, 2. Mucilage bodies stained with toluidine blue.

The powder as seen under the microscope shows the following inclusions.

Mucilage (fig.1, 1.2) large and small bodies of mucilage are the major element with powder. They are spherical, ovoid, elliptical and polygonal in shape. The large body of the mucilage is 400 µm in diameter when staining with safranin the mucilage bodies are light lower, with toluidene blue they are blue

Pollen grain are occasionally seen in the powder (fig2, 2.1); the pollen grain in equatorial view appear triangular with there conical poles of polar view they are circular (fig 2.2). The exine of the pollen wall is smooth and thick. The pollen grain was upto 40 µm in diameter.

Calcium oxalate crystals are frequent with the powder. They are prismatic type varying from rhomboidal to polyhydral in shape the largest crystal is 110 µm thick (fig 2.3)

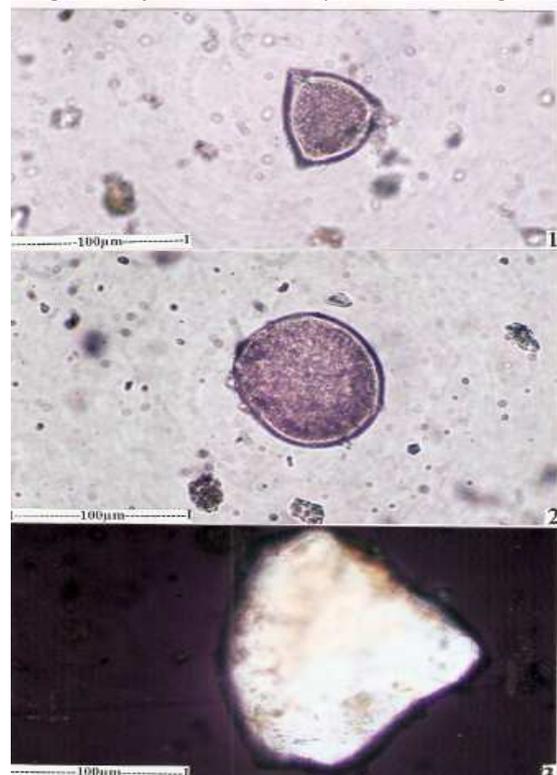


Figure:1.pollen with triangular outline, 2. Another pollen in circular view,3.Cacium oxalate crystals (seen under the polarised light)

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