

POLLEN FLORA OF PAKISTAN - XXXIV. SAPOTACEAE

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Abstract

Pollen morphology of the family Sapotaceae has been examined from Pakistan by light and scanning electron microscope. Pollen grains are generally tricolporate, triangular, prolate with striate - rugulate tectum.

Introduction

The family Sapotaceae comprises of 38 genera ca. 1100 species of plants distributed in the tropical regions of the world (Willis, 1973; Mabberley, 1987). In Pakistan it is represented by 3 genera and 7 species; only *Monotheca buxifolia* is native (Malik, 1984).

Pollen morphology of the family has been studied by Hartog (1879); Erdtman (1952); Faegri & Iversen (1964); Straka *et al.*, (1967); Moore & Webb (1978); Caratini (1974), Lieux (1982) and Harley (1991). There are no reports on the pollen morphology of the family Sapotaceae from Pakistan. In the present paper, the pollen morphology of the family Sapotaceae from Pakistan has been examined by light and scanning electron microscope.

Materials and Methods

Pollen samples were obtained from Karachi University Herbarium (KUH) or collected from the field. The pollen grains were prepared for light (LM) and scanning electron microscopy (SEM) by the standard methods described by Erdtman (1952). For light microscopy, the pollen grains were mounted in unstained glycerine jelly and observations made with a Nikon Type-2 microscope, under (E40, 0.65) and oil immersion (E100, 1.25) using 10 x eye piece. For SEM studies, pollen grains suspended in a drop of water were directly transferred with a fine pipette to a metallic stub using double sided cellotape and coated with gold in a sputtering chamber (Ion-sputter JFC-1100). Coating was restricted to 150A. The S.E.M. examinations are based on 15-20 readings from each specimen. Polar axis (P) and equatorial diameter (E), aperture size, apocolpium, mesocolpium and exine thickness were measured.

The terminology used is in accordance with Erdtman (1952); Kremp (1965); Faegri & Iversen (1964) and Walker & Doyle (1976).

General pollen characters of the family Sapotaceae

Pollen grains generally radially symmetrical, isopolar, prolate, 5-colporate, sexine thinner than nexine, colpi long with distinct ora. Tectum striate - rugulate.

Descriptions of pollen type

Monotheca buxifolia - type (Fig. A-C)

Pollen class: 5-colporate, zonoaperturate.

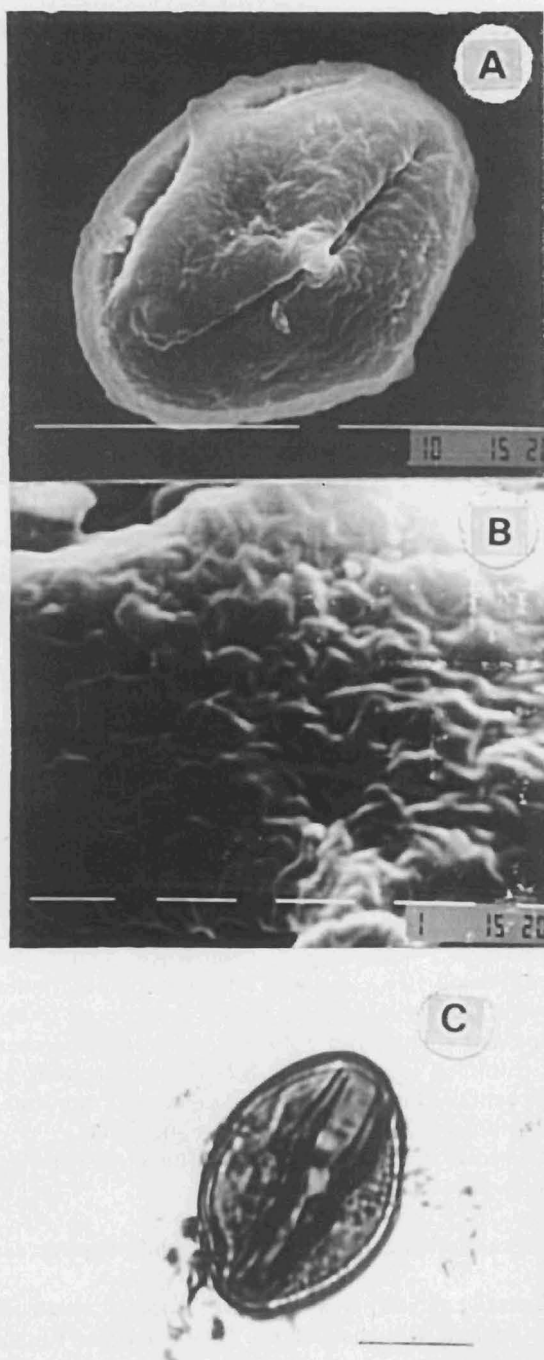


Fig. 1. Pollen of *Monothea buxifolia*: A & B = Scanning electron micrographs; A, Equatorial view; B, Exine pattern. C & D = Light micrographs (LM); C, Equatorial view. Scale bar = A & B = 10 μm ; C = 20 μm .

P/E ratio: Erect.

Shape: Prolate

Apertures: Ectoaperture - colpus long, narrow, not sunken, colpi with vestibuli. Endoaperture - Ora circular distinct. Colpal membrane granulated.

Exine: Sexine thinner than nexine.

Outline: \pm triangular in polar view and elliptic in equatorial view.

Ornamentation: Tectum rugulate-striate.

Measurements: Size: Polar axis P(20-) 17.5 ± 0.25 (-27.5) μm and equatorial diameter E(15-) 17.5 ± 0.23 (-19.11) μm , P/E ratio: 1.37, colpi (17.5-) 20.4 ± 0.61 (-25) μm long, colpal membrane granulate, ora la-longate. Mesocolpium c. 10 μm . Apocolpium c. 2.5 μm . Exine c. 2.5 μm thick, sexine thicker than nexine. Tectum rugulate-striate. P.A.I.: 0.53.

Species included: *Monothea buxifolia* (Falc.) A.DC.

Discussion

Pollen grains of *Monothea buxifolia* type is characterized by tri-zonocolporate pollen with striate - rugulate tectum. The pollen grains of closely related families i.e., Myrsinaceae and Styracaceae are different from Sapotaceae as both the families have tri-colporate pollen (1991). However, pollen grains of family Sapotaceae are more or less similar to Ebenaceae (Erdtman, 1952).

Specimens examined: *Monothea buxifolia*: c. 20 km from Baloytan on way to Hoshab, Tahir Ali 828 (KUH); behind Khuzdar, Abdul Ghafoor & Steve M. Goodman 4988 (KUH).

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