

POLLEN FLORA OF PAKISTAN -XXXVI. FLACOURTIACEAE

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Abstract

Pollen morphology of the family Flacourtiaceae has been examined from Pakistan by light and scanning electron microscope. Pollen grains are generally radially symmetrical, isopolar, tricolporate, zonoaperturate, prolate with reticulate tectum.

Introduction

Flacourtiaceae is a medium family with 90 genera and nearly 1000 species, distributed in the tropical and sub-tropical regions (Willis, 1973; Mabberley, 1987). In Pakistan it is represented by 3 genera and five species (Nasir, 1970). Takhtajan (1969, 1980) kept the family Flacourtiaceae under the order Capparales, whereas Cronquist (1981), Thorne (1983) and Dahlgren (1989) placed the family Flacourtiaceae in the order Violales.

Pollen morphology of the family has been studied by Edgeworth (1877), Erdtman (1952), Wang (1960), Faegri & Iversen (1964), Nair (1965), Archangelsky (1971), Moore & Webb (1978). In the present paper, the pollen morphology of the family Flacourtiaceae from Pakistan has been examined by light and scanning electron microscope.

Materials and Methods

Pollen samples were obtained from Karachi University Herbarium (KUH). The pollen grains were processed by the standard methods described by Erdtman (1952). The measurements were 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 (1975).

General pollen characters of the family Flacourtiaceae

Pollen grains generally radially symmetrical, isopolar, prolate, equatorial view elliptic, polar view trilobed, colpi long with slightly la-longate ora. Tectum finely reticulate.

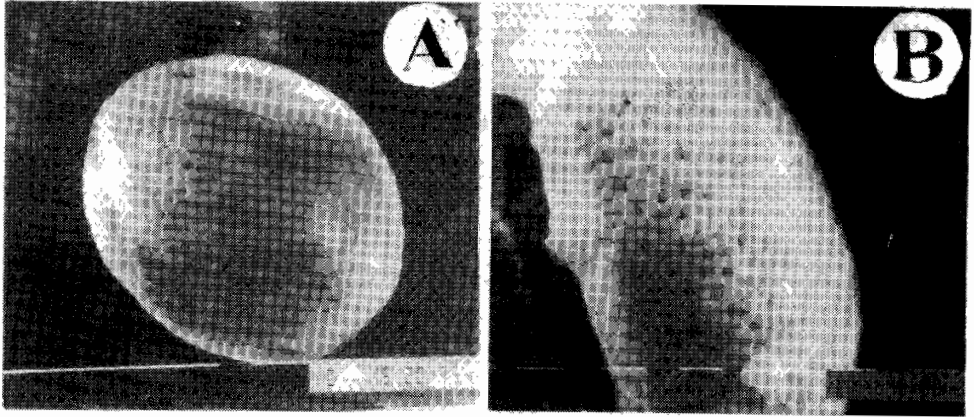


Fig. 1. Pollen of *Flacourtia indica*: A & B = Scanning Electron micrographs: A, Equatorial view; B, Exine pattern.

Scale bar = A = 10 μm ; B = 1 μm

Descriptions of pollen type

Flacourtia indica - type (Fig.1 A & B)

Pollen class: Tricolporate, zonoaperturate.

P/E ratio: Erect.

Shape: Prolate

Apertures: Ectoaperture - colpus long, narrow, not sunken, colpi with costae. Endoaperture - Ora slightly la-longate. Colpal membrane granulated.

Exine: Sexine thicker than nexine or as thick as nexine.

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

Ornamentation: Tectum finely reticulate, with regular pattern of muri, luminae \pm circular, 0.016-0.33 μm in diameter.

Measurements: Size: Polar axis P(16.65-) 20.3 ± 1.75 (-24.96) μm , and Equatorial diameter E(9.99-) 13.3 ± 1.05 (-16.65) μm . P/E ratio: 1.52, colpi (9.99-) 16.65 ± 2.35 (-19.98) μm long. Mesocolpium (8.32-) 9.43 ± 0.54 (-9.99) μm . Apocolpium (2.33-) 2.55 ± 1.09 (-2.66) μm . Exine (0.99-) 1.53 ± 0.13 (-1.66) μm thick. P.A.I: 1.41.

Species included: *Flacourtia indica* (Burm.) Merrill

Comments:

Pollen grains of *Flacourtia indica* - type is characterized by tri-zonocolporate pollen with reticulate tectum. Similar type of pollen grains in the genus *Flacourtia* have also been reported by Keating (1973).

The pollen grains of closely related families i.e., Bixaceae and Peridisaceae are more or less similar to Flacourtiaceae as both the families have colporate pollen (Erdman, 1952). However, in the family Flacourtiaceae tectum is reticulate (Keating, 1973).

The placement of Flacourtiaceae within the order Violales by Cronquist (1981) and Dahlgren (1989) therefore seems to be justified.

Specimens examined: *Flacourtia indica*: Narmah, Poonch Azad Kashmir, Rashid Khan 2779 (KUH); Nurpur, Dharmsola Rd., R.R. Stewart s.n. (KUH).

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