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POLLEN FLORA OF PAKISTAN -XVII. FRANKENIACEAE

ANJUM PERVEEN AND M. QAISER

Department of Botany,
University of Karachi, Karachi - 75270, Pakistan

Abstract

Pollen morphology of the family Frankeniaceae has been examined from Pakistan by light and scanning electron microscope. Pollen grains are generally colpate, sub-oblate. Tectum densely rugulate with scabrae.

Introduction

Frankeniaceae, a small family of 5 genera and about 75 species is widely distributed in deserts and sandy coastal areas throughout the world (Willis, 1973; Mabberley, 1987). Thorne (1983) and Cronquist (1981) placed the family Frankeniaceae under the order Violales near Violaceae, whereas Takhtajan (1969, 1980) and Dahlgren (1983) kept the family Frankeniaceae within the order Tamaricales along with Tamaricaceae. In Pakistan it is represented by a single genus with one species i.e., *Frankenia pulverulanta* L. (Nasir, 1971).

Pollen morphology of the family has been studied by Erdtman (1952); Faegri & Iversen (1964); Moore & Webb (1978); Huang (1967); Kuprianova & Alyoshina (1972) and Keating (1973). There are no reports on the pollen morphology of the family Frankeniaceae from Pakistan. In the present paper, the pollen morphology of the family Frankeniaceae 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 processed by the standard acetyolysis method described by Erdtman (1952). The measurements were based on 15-20 readings from each specimen. Pollen diameter, 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 Frankeniaceae

Pollen grains generally radially symmetrical, isopolar, suboblate, equatorial view elliptic, polar view triangualar, colpi long with acute ends, sexine thinner than nexine. Tectum densely rugulate with scabrae.

Descriptions of pollen type

Pollen type - I: ***Frankenia pulverulanta*** **L. (Fig.1 A-C).**
Pollen class: Tricolpate, zonoaperturate.
P/E ratio: Semi-transverse.

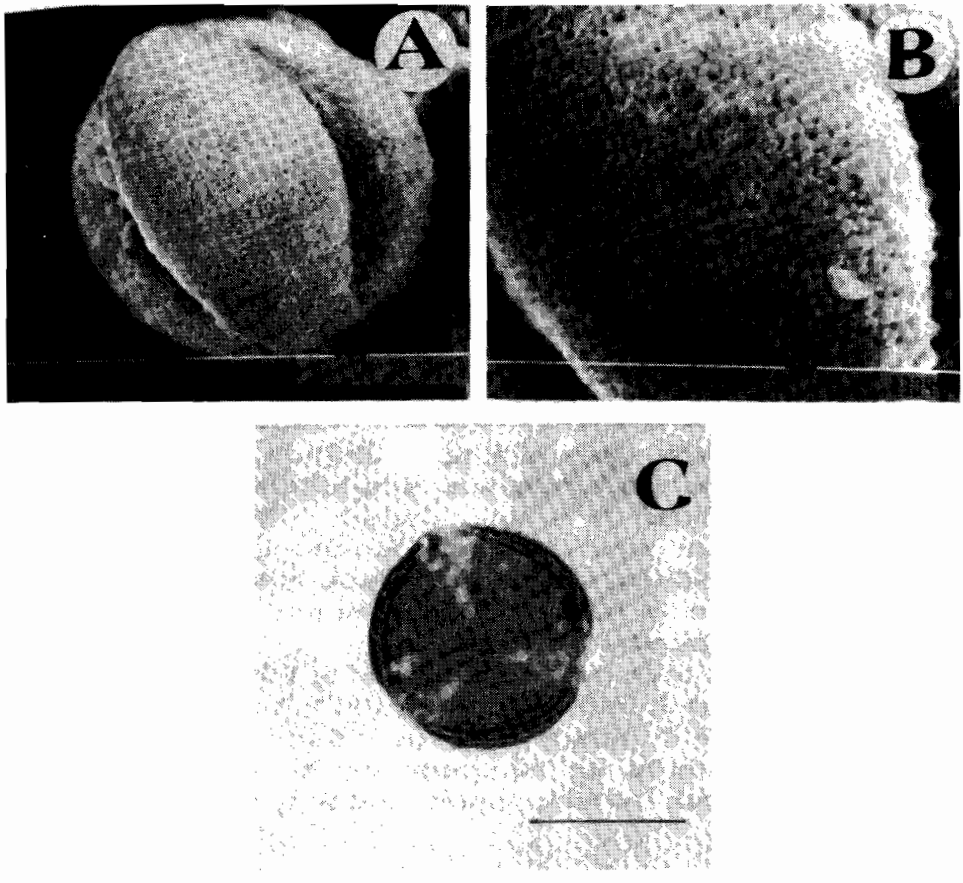

Fig. 1. Pollen of *Frankenia pulverulanta*: A & B = Scanning Electron micrographs: A, Equatorial view; B, Exine pattern. C = Light micrograph (LM): C, Polar view.
Scale bar = A & B = 10 μm; C = 20 μm.

Shape: Sub-oblate.
Apertures: Ectoaperture - colpi long narrow.
Exine: Sexine slightly thinner than nexine.
Ornamentation: Tectum densely rugulate with scabrae.
Measurements: Polar axis (14.36-) 21.8 $\pm$ 2.1 (-28.72) um, and Equatorial diameter E(21.5-) 26 $\pm$ 1.13 (-35.5) um, colpi (21.5-) 25.7 $\pm$ 1.27 (-32.5) um in length, colpal membrane granulated. Mesocolpium (17.2-) 26.8 $\pm$ 0.46 (-25.13) um. Apocolpium (1.07-) 2.84 $\pm$ 0.28 (-3.94) um. Exine (1.75-) 2.78 $\pm$ 0.14 (-3.23) um thick.
Species included: *Frankenia pulverulanta* L.
Comments:

Pollen grains of *Frankenia pulverulanta* - type is easily distinguished by its tri-Zonocolpate pollen with striate - rugulate tectum (Erdtman, 1952; Moore & Webb, 1978; Keating 1973).

The pollen grains of closely related family i.e., Tamaricaceae are more or less similar to Frankeniaceae as both the families have colpate pollen (Erdtman, 1952). However, in the family Tamaricaceae tectum is reticulate (Keating, 1973).

The placement of Frankeniaceae within the order Tamaricales by Takhtajan (1969, 1980) and Cronquist (1981) therefore seems to be justified.

Specimens examined: *Frankenia pulverulanta*: Okara, near coastal guard, post Jawani; M. Qaiser A. Khan 7131 (KUH); Plam garden, Tep Turbat Mand Rd.,Sultan ul Abedin & Abrar Hussain 6191 (KUH). Near Pond, 3 miles from rest house Gwadapi, Sultan-ul-Abedin & Abrar Hussain 6373 (KUH).

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