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POLLEN FLORA OF PAKISTAN -XVI. CORIARIACEAE

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Abstract

Pollen morphology of the family Coriariaceae has been examined from Pakistan by light and scanning electron microscope. Pollen grains are generally porate, prolate - spheroidal with scabrate tectum.

Introduction

Coriariaceae is small monotypic family with about 15 species distributed in South Europe, North Africa, India, Nepal, South East Asia, New Zealand, Japan and Mexico to Chile (Willis, 1973; Mabberley, 1987). Takhtajan (1969, 1980) and Thorne (1983) placed the family Coriariaceae under the order Rutales. Cronquist (1981), however referred Coriariaceae in the order Ranunculales whereas, Dahlgren (1983) kept the family Coriariaceae in the order Sapindales. In Pakistan, it is represented by a single genus with one species i.e., *Coriaria nepalensis* Wall.,(Ghafoor, 1973).

Pollen morphology of the family has been studied by Cranwell, 1942; Erdtman (1952); Faegri & Iversen (1964); Heusser (1971); Huang (1967); Praglowski (1970) and Moore & Webb (1978). There are no reports on the pollen morphology of the family Coriariaceae from Pakistan. In the present paper, the pollen morphology of the family Coriariaceae 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), 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 Coriariaceae

Pollen grains generally radially symmetrical, isopolar, prolate - spheroidal, porate, pore circular, sexine thinner than nexine. Tectum finely scabrate.

Descriptions of pollen type

Pollen type - I: *Coriaria nepalensis* (Fig.1 A-D).
Pollen class: Triporate, zonoaperturate.
P/E ratio: Suberect.
Shape: Prolate-spheroidal.

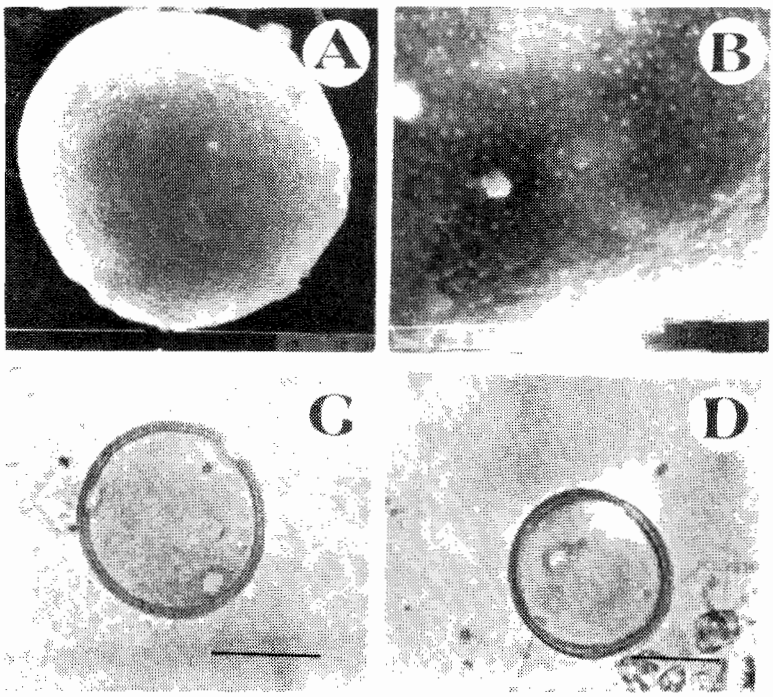

Fig.1. Pollen of *Coriraria neplensis*:
A & B = Scanning Electron micrographs: A, Equatorial view; B, Exine pattern.
C & D = Light micrographs (LM): C, Polar view; D, Equatorial view
Scale bar = A & B = 10 μm; C & D = 20 μm

Apertures: Ectoaperture - pori circular with annulus.
Exine: Sexine thinner than nexine.
Ornamentation: Tectum finely scabrate
Measurements: Polar length L(17.9-) 25.3 $\pm$ 0.67 (-32.31) μm, Equatorial breadth B(17.9-) 24.6 $\pm$ 4.46 (-32.3) μm, pore circular, (3.23-) 4.32 $\pm$ 0.2 (-6.46) μm in diameter. Mesoporium (17.95-) 19.5 $\pm$ 0.83 (-21.59) μm. Apoporium (8.97-) 10.77 $\pm$ 0.618 (-10.77) μm. Exine (0.718-) 1.69 $\pm$ 0.018 (-0.354) μm thick.
Species included: *Coriaria nepalensis* Wall.
Comments: Pollen grains of *Coriaria nepalensis* - type is characterized by porate pollen with scabrate tectum. Similar type of pollen grains in the genus *Coriaria* have also been reported by Erdtman (1952); Moore & Webb (1978).

The pollen grains of closely related family i.e., Sapindaceae are different from Coriariacea, in Sapindaceae tricolporate pollen are found (Erdtman, 1952).
Specimens examined: *Coriaria nepalensis*: 16 Km from Abbottabad to Galiol, Shahid 5152 (KUH); 5 miles from Murree on way to Ayubia, Kamal Akhter & M. Qaiser 82 (KUH).

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References

Cranwell, L. M. 1942. New Zealand pollen studies - I. Key to the pollen grains of families and genera in the native flora. *Rec. Auckland Inst. Mus*, 2: 280-308.

Cronquist, A. 1981. *The Intergrated System of Classification of Flowering Plants*. Columbia Univ. Press, New York.

Dahlgren, R. 1983. General aspects of angiosperm evolution and macrosystematics. *Nordic J. Bot.* , 3: 119-149.

Erdtman, G. 1952. *Pollen Morphology and Plant Taxonomy. Angiosperms*. Chronica Botanica Co., Waltham, Massachusettes.

Faegri, K. and J. Iversen. 1964. *Text Book of Pollen Analysis*. Munksgaard, Copenhagen.

Heusser, C. J. 1971. *Pollen and spores of Chile*. Univ. Arizona Press, Tucson.

Huang, T. C. 1967. Pollen grains of Formosan plants-II.- *Taiwania*, 13: 15-110.

Ghafoor, A. 1973. Coriariaceae. In: *Flora of Pakistan*. 43: 1-3, (Eds.) E. Nasir and S.I. Ali. Karachi University.

Kremp, G.O.W. 1965. *Encyclopaedia of Pollen Morphology*, Univ. Arizona Press, Tuscon, U.S.A.

Mabberley, D.I. 1987. *The Plant Book*. Camb. Univ. Press, Cambridge, New York. 1987.

Moore, P.D. and J. A. Webb. 1978. *An Illustrated Guide to Pollen Analysis*. Hodder and Stoughton, London.

Praglowski, J. 1970. Coriariaceae. W.P.F., 1: 15:31, Munksgard Copenhagen.

Takhtajan, A. 1969. *Flowering plants (Origin and Dispersal)*. Oliver & Boyd, Edinburgh.

Takhtajan, A. 1980. Outline of the classification of flowering plants (Magnoliophyta). *Bot. Rev.* , 46: 225-359.

Thorne, R.F. 1983. Proposed new realignments in the angiosperms. *Nordic J. Bot.*, 3: 85-117.

Walker, J.W. and J. A. Doyle. 1975. The basis of Angiosperm phylogeny: Palynology. *Ann. Mo. Bot. Gard.*, 62: 666-723. 1976.

Willis, J.C. 1973. *A Dictionary of the flowering Plants & Ferns*. VII University Press, Cambridge. 1973.

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