

POLLEN FLORA OF PAKISTAN – XXXV. BUTOMACEAE

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Abstract

Pollen morphology of the family Butomaceae has been examined from Pakistan by light and scanning electron microscope. Pollen grains are generally heteropolar, boatshaped, mono-colpate with reticulate tectum.

Introduction

Butomaceae is a small unigeneric family, represented by a single species i.e., *Butomus umbellatus* L., (Willis, 1973; Mabberley, 1987). It is world wide in distribution, but chiefly in temperate and sub tropical Eurasia.

Butomus umbellatus L., is a glabrous, aquatic perennial herb with starchy rhizomes; leaves basal or cauline, sheathing at the base, linear, ensiform. Bentham & Hooker (1976); Hutchinson (1973) included genus *Butomus* within the family Alismataceae, but this genus differs by the absence of latex, in leaf shape and type of inflorescence (fascicled umbellate cyme) introrse anthers, numerous scattered ovules and straight embryo (Aziz, 1974). However, presently authors like Takhtajan (1969), Cronquist (1968, 1981); Thorne (1983) and Dahlgren (1989) treated the genus *Butomus* as a distinct family under the order Alismatales.

Pollen morphology of the family Butomaceae have been studied by Faegri & Iversen (1964); Meyer (1966); Thanikaimoni (1970); Moore & Webb (1978) and Straka (1977). There are no previous reports available on palynological studies of the family *Butomaceae* from Pakistan. In the present paper, palynological characters of the family Butomaceae from Pakistan is reported.

Materials and Methods

Pollen samples were obtained from Karachi University Herbarium (KUH) or collected from the field. The pollen grains were prepared for light and scanning microscopy by the standard methods described by Erdtman (1952). For light microscopy the pollen grains were mounted in unstained glycerine jelly and observations were 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 was indirectly transferred with a fine pipette to a metallic stub using double sided cellotape and coated with gold in a sputtering chamber (Ionsputter JFC-1100), coating was restricted to 150A. S.E.M. examination was carried out on a Jeol microscope JSM-T200. The measurements were based on 15-20 readings from each specimen. Pollen length (L) and breadth (B), colpi length, exine thickness were measured.

The terminology used is in accordance with Erdtman (1952); Kremp (1965); Faegri & Iversen (1964) and Walker & Doyle (1975).

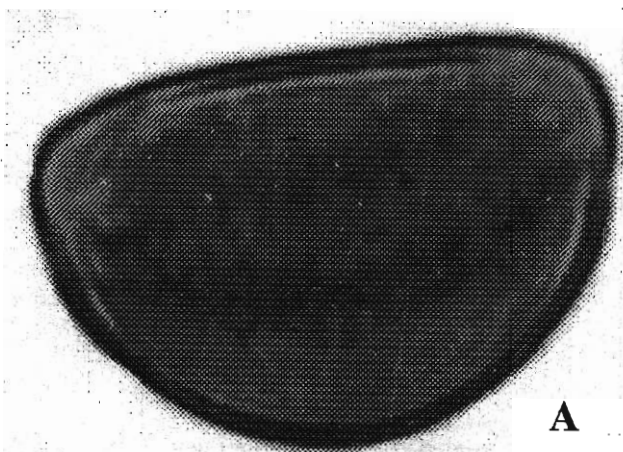


Fig. 1. Light micrograph of *Butomus umbellatus*: A, Pollen grain x40.

Results and Discussion

Pollen grains of *Butomus umbellatus* L. (Fig. 1A) are oblong, monocolpate, colpi (30-) 32.5 ± 1.26 (-37.5) μm long. Size: length (22.5-) 31.07 ± 1.3 (-30) μm , breadth 13 (35-) 36.66 ± 0.98 (-40) μm . Exine (0.25-) 0.75 ± 0.17 (-1.25) μm thick. Sexine thicker than nexine. Tectum reticulate.

Butomaceae is a stenoplynous taxon, pollen grains generally heteropolar, boatshaped, monocolpate. Tectum reticulate (Erdtman, 1952; Moore & Webb, 1978). This family shows resemblance in many ways to Nymphaeaceae (Cronquist, 1981). The present palynological data also favours above idea, because monocolpate, boatshaped, heteropolar grains are also reported in the family Nymphaeaceae (Erdtman, 1952).

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