

Pollen Morphology of the Species Belonging to the Genus *Dontostemon* (Andrz.) C. A. Mey. (Brassicaceae Jussj)

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Abstract

Pollen grains of five species of the genus *Dontostemon* (Andrz.) C. A. Mey are studied in detail by using light and scanning electron microscopes. Pollen description of each taxon is given. Dry pollen grains are oval, tricolpate with average size of 27.4-38.1 μm in length, and 22.6-29.1 μm in width, light yellowish in color, reticulate on surface, which made of amorphous polygons, mostly pentagonal units of variable in size.

Key words: polen grans, microscopic study, *Dontostemon*, Mongolia

Introduction

There are 11 species in the genus *Dontostemon* (including *Dimorphostemon pectinathus* and *Nasturtium libeticitm*) that mostly growing in the Central Asian mountain steppe, steppe, desert steppe and desert zones (Al-Shehbaz & Ohba, 2000). Seven species of this genus (including *Dimorphostemon pectinathus*) are found in Mongolia (Gubanov, 1996).

The pollen grains can be preserved in soil for a long period of time, and it is accepted as a conservative character for classification to establish the evolutionary history of plants. The shape of pollen grains is specific to some taxonomic ranks, such as family, genus and species. Therefore, as an important feature, the morphology of pollen grains is used in resolving systematical problems and establishing the phylogenetic relationships (Erdtman, 1943; Golubkova, 1950; Punsalpaamuu, 1999).

There was no study on the pollen structure of *Dontostemon* until V.F. Golubkova's [1950] work, who studied such species as *D. hispidus*, *D. integrifolius* and *D. pectinanthus*, and she come to the conclusion that these species are closely related to *Clausia aprica* and *Hesperis sibirica*.

The main aim of this study is to reveal the detailed pollen morphology of some *Dontostemon* species by using of compound and electron microscopes.

Materials and Methods

A list of the studied and collection localities or accession numbers for each species is given Table 1. All materials were identified by the first author, and voucher specimens are deposited in the Herbarium of the Department of Botany, National University of Mongolia (UBU).

For the compound microscopic study (Carl Zeiss) the pollen slides were prepared according to the technique of Wodehouse (1936) and Erdtman (1972) and made statistic measurement of pollen grains and examinations of other characteristics. The samples were fixed in the about 96% ethylated spirits. After pollen grains were dissected on a slide in 0.05% fuchsine then squashed under a cover slip.

Pollen morphology descriptions were carried out in accordance with the method by Erdtman (1971). Sample derivation data for investigated taxa of the genus *Dontostemon* and dimensions and morphological variations in pollen of some species are given in Table 2. The photographs of pollen were taken with a Nikon Eclipse E200 microscope and some photographs of selected representatives of pollen are presented in this paper.

For scanning electron microscopic study, unacetolysed pollen grains were transferred to stubs and coated gold. Pollen nomenclature is followed by Faegri and Iversen (1975).