

## POLLEN MORFOLOGY OF SOME *ARTEMISIA* SPECIES (ASTERACEAE) FROM MONGOLIA

V. V. Grigoryeva<sup>a,#</sup> and A. A. Korobkov<sup>a</sup>

<sup>a</sup> Komarov Botanical Institute RAS  
Prof. Popov Str., 2, St. Petersburg, 197376, Russia

<sup>#</sup>e-mail: mikhailov\_val@mail.ru

Pollen morphology of *Artemisia* 55 species (subgenera *Artemisia*, *Dracunculus* and *Seriphidium*) has been examined using the light (LM) and scanning electron microscope (SEM) with respect to the taxonomy of the genus.

Pollen grains of *Artemisia* are radially symmetrical, isopolar, 3-colporate, subspheroidal or elliptic, small- or medium-sized (ranging from  $17.5\text{--}19.0 \times 17.5\text{--}20.0 \mu\text{m}$  in *A. blepharolepis* (section *Absinthium*, subgenus *Artemisia*) to  $29.6\text{--}35.2 \times 33.7\text{--}38.8 \mu\text{m}$  in *A. macrantha* (section *Abrotanum*, subgenus *Artemisia*)), with microechinate exine. Their shape in polar view is trilobate, the shape in equator view is nearly circular or elliptic.

The similarity of morphological features makes pollen characters of limited value in species delimitation. *A. palustris* and *A. caespitosa* are distinguished from all studied species.

The pollen grains of the species from the sections *Abrotanum* and *Absinthium* (subgenus *Artemisia*) are the most diverse. According to the nature of the pollen grain sculpture in the *Abrotanum* and *Absinthium* sections, there are 3 pollen groups. It seems difficult to differentiate subgenera and sections of *Artemisia*.

**Keywords:** *Artemisia*, pollen grains, palynomorphology, exine

**DOI:** 10.31857/S0006813621090064

### ACKNOWLEDGEMENTS

The work was carried out using the equipment of the Core Facility Center “Cellular and molecular technologies for plants and fungi” of the Komarov Botanical Institute RAS (St. Petersburg) in the framework of the institutional research project of the Komarov Botanical Institute of Russian Academy of Sciences “Structural and functional bases of development and adaptation of higher plants”, AAA-A18-118031690084-9.

### REFERENCES

- Darjima Sh. 1990. Rod *Artemisia* L. v Mongolskoi Narodnoi Respublike: sistematika, ekologiya i khozyaistvennoe znachenie. [The Genus *Artemisia* L. in the Mongolian People's Republic: systematics, geography, ecology and economic significance.]: Avtoref. Dis. ... kand. biol. nauk. Ulan-Bator. 26 p. (In Russ.).
- Erdtman G. 1952. Pollen morphology and taxonomy. Angiosperms. Stockholm. 539 p.
- Filatova N.S. 2003. Rasteniya Tsentralnoy Azii po materialam Botanicheskogo instituta im. V.L. Komarova. Vyp. 14a. Slozhnotsvetnye (pupavkovye). [Plants of Central Asia based on the materials of the Komarov Botanical Institute. Iss. 14a. Compositae.]. Saint-Petersburg. P. 55–131 (In Russ.).
- Grigoryeva V.V., Korobkov A.A., Tokarev P.I. 2009. Pollen morphology of genus *Artemisia* (Asteraceae). — Bot. Zhurn. 94 (3): 328–351 (In Russ.).
- Grubov V.I. 1955. Konspekt flory Mongolskoy Narodnoy Respubliki. [Conspectus of the flora of the Mongolian people's Republic.]. Moscow, Leningrad. 308 p. (In Russ.).
- Grubov V.I. 1982. Opredelitel' sosudistykh rasteniy Mongolii (s atlasom) [Determinant of vascular plants in Mongolia (with Atlas).]. Leningrad. 442 p. (In Russ.).
- Gubanov I.A. 1996. Conspectus of Flora of outer Mongolia (Vascular plants). Moscow. 136 p. (In Russ.).
- Jiang L., Wang Q., Ye L., Lin Y. 2005. Pollen morphology of *Artemisia* L. and its systematic significance. — WUJNS. 10 (2): 448–454.
- Kamelin R.V. 1987. Florocenotypes of vegetation of the Mongolian National Republic. — Bot. Zhurn. 72 (12): 1580–1594 (In Russ.).
- Korobkov A.A. 1981. Polyni Severo-Vostoka SSSR [Mugworts of North-East of the USSR]. Leningrad. 120 p. (In Russ.).
- Kupriyanova L.A., Aleshina L.A. 1967. Palinologicheskaya terminologiya pokrytosemennykh rasteniy [Palynological terminology of angiosperms]. Leningrad. 84 p. (In Russ.).
- Kupriyanova L.A., Aleshina L.A. 1972. Pyltsa i spory rasteniy flory evropeiskoy chasti SSSR [Pollen and spores of plants from European part of USSR]. V. 1. Leningrad. P. 48–51 (In Russ.).
- Martin J., Torrell M., Korobkov A.A., Valles J. 2008. Palynological features as a systematic marker in *Artemisia* L. and related genera (Asteraceae, Anthemideae)-II: implication for subtribe *Artemisiinae* delimitation. — Plant. Biol. 5 (1): 85–93.  
<https://doi.org/10.1055/s-2003-37979>
- Monoszon M.X. 1950. Opisanie pyltsy vidov polynei proizrastayushikh na territorii SSSR [Pollen description of some *Artemisia* species growing in the territory of the USSR]. — Trudy Instituta Geografii AN SSSR. 46: 271–360 (In Russ.).

- Polyakov P.P. 1961. Rod 1550. Polyn' – *Artemisia* L. – In: Flora SSSR. V. 26. Moscow, Leningrad. P. 438–630 (In Russ.).
- Pozhidaev A.E. 1993. Polymorphism of pollen in the genus *Acer* (Aceraceae). Isomorphism of deviant forms of Angiosperm pollen. – Grana. 32 (2): 79–85.
- Pozhidaev A.E. 1995. Pollen morphology of the genus *Aesculus* (Hippocastanaceae). Patterns in the variety of morphological characteristics. – Grana. 34 (1): 10–20.
- Pragłowski J. 1971. The pollen morphology of the scandinavian species of *Artemisia* L. – Pollen et Spores. 13 (3): 381–404.
- Sheludyakova M.B., Grigoryeva V.V., Pozhidaev A.E. 2017. Pollen morphology of some species of genus *Scrophularia* (Scrophulariaceae). – Bot. Zhurn. 102(3): 361–379 (In Russ.).
- Singh G., Joshi R.D. 1969. Pollen morphology of some Eurasian species of *Artemisia*. – Grana palynol. 9 (1–3): 50–62.
- Yeloff D., Blokker P., Boelen P., Rozema J. 2008. Is Pollen Morphology of *Salix Polariss* Affected by Enhanced UV-B Irradiation? Results from a Field Experiment in High Arctic Tundra. – Arctic, Antarctic, and Alpine Research. 40 (4): 770–774.  
[https://doi.org/10.1657/1523-0430\(07-045\)\[YELOFF\]2.0.CO;2](https://doi.org/10.1657/1523-0430(07-045)[YELOFF]2.0.CO;2)