

**ANOMALY IN POLLEN APERTURES OF
COLDENIA PROCUMBENS (BORAGINACEAE)**

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Abstract

Coldenia procumbens produces 6-heterocolpate (3-colporate, 3-colpate) pollen grains instead of 3-porate or 3-brevicolporate previously described.

Introduction

The genus *Coldenia* contains *C. procumbens* the single species of the old world also found in Pakistan and the remaining species are native to the arid regions of America (Johnston, 1951).

Information on pollen morphology of *C. procumbens* is rather scant in literature. In a general pollen description of the allied genera Erdtman (1952) included *C. dichotoma*. Johnston (1956) described few pollen characters of *C. procumbens*, *C. dichotoma*, *C. ferreyrae*, *C. grandiflora* and *C. simulens* in his morphological studies of the genus. Gupta (1971) described pollen grains of *C. procumbens*. There seems to be a discrepancy about the types of apertures in *C. procumbens*. A comparative account of the apertures found in *C. procumbens* is, therefore, presented.

Material and Method

Herbarium material was obtained from PCSIR Herbarium, Peshawar (PES). Pollen were treated by the standard acetolysis method of Erdtman (1952). All the slides are deposited in the Pollen Herbarium, Department of Botany, University of Sind. The optical microscopic study and measurements of pollen grains were carried out with an Ortholux-II (Leitz, Wetzler) microscope, using oil immersion objective. About 100 grains were measured. Photographs were taken on Kodak Panatomic-X, 16-DIN rolls.

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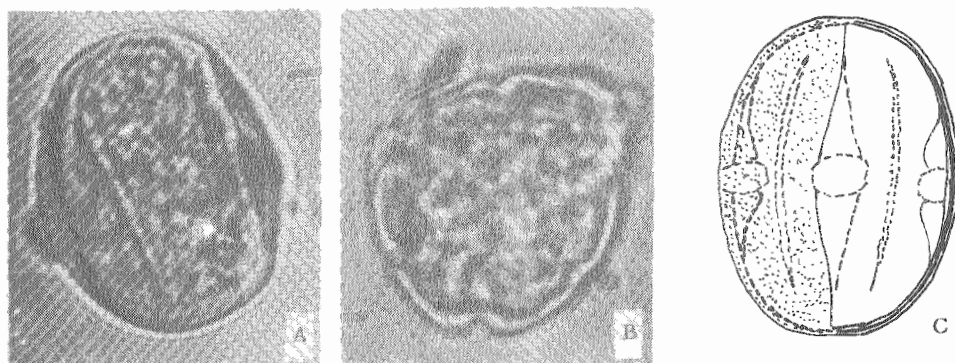


Fig. 1. A. *Coldenia procumbens*, Equatorial view. X2500;
 B. *Coldenia procumbens*, Polar view. X2500.
 C. *Coldenia procumbens*, Heterocolpate apertures. X2500.

Description

Pollen grains 6-heterocolpate, angulaperturate, circular to slightly oval in equatorial view, tri-hexangular in polar view, prolate-spheroidal to subprolate, small sized 22–(23)–24 μm in equatorial view and 16–(19)–22 μm in polar view; apertures two types i.e. 3 complex (ecto-apertures – colpi 16.5 μm long and 4 μm broad in the middle, and endoapertures – ora 1.7 x 3.3 μm in diam.), alternating with 3 simple (colpi 20 μm long and 1.5 μm broad in the middle).

Exine ca. 2.2 μm thick, sexine as thick as nexine, tectum more or less psilate.

Discussion

Johnston (1956) describing 3-porate grains in *C. procumbens* (an old world species), *C. dichotoma*, *C. simulens*, *C. ferreyrae* and *C. grandiflora* (all American species), has suggested that the pores are small and usually inconspicuous or even invisible under low magnifications of 450X. Gupta (1971) reported that *C. procumbens* produces 3-brevicolporate pollen grains. The present findings suggest that *C. procumbens* produces 6-heterocolpate (3-colporate, 3-colpate) grains (Fig. 1–3) instead of 3-porate or 3-brevicolporate pollen grains. The 6-heterocolpate grains observed in *C. procumbens* are somewhat similar to that described by Gupta (1971). However, they are different from the findings of Johnston (1956).

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