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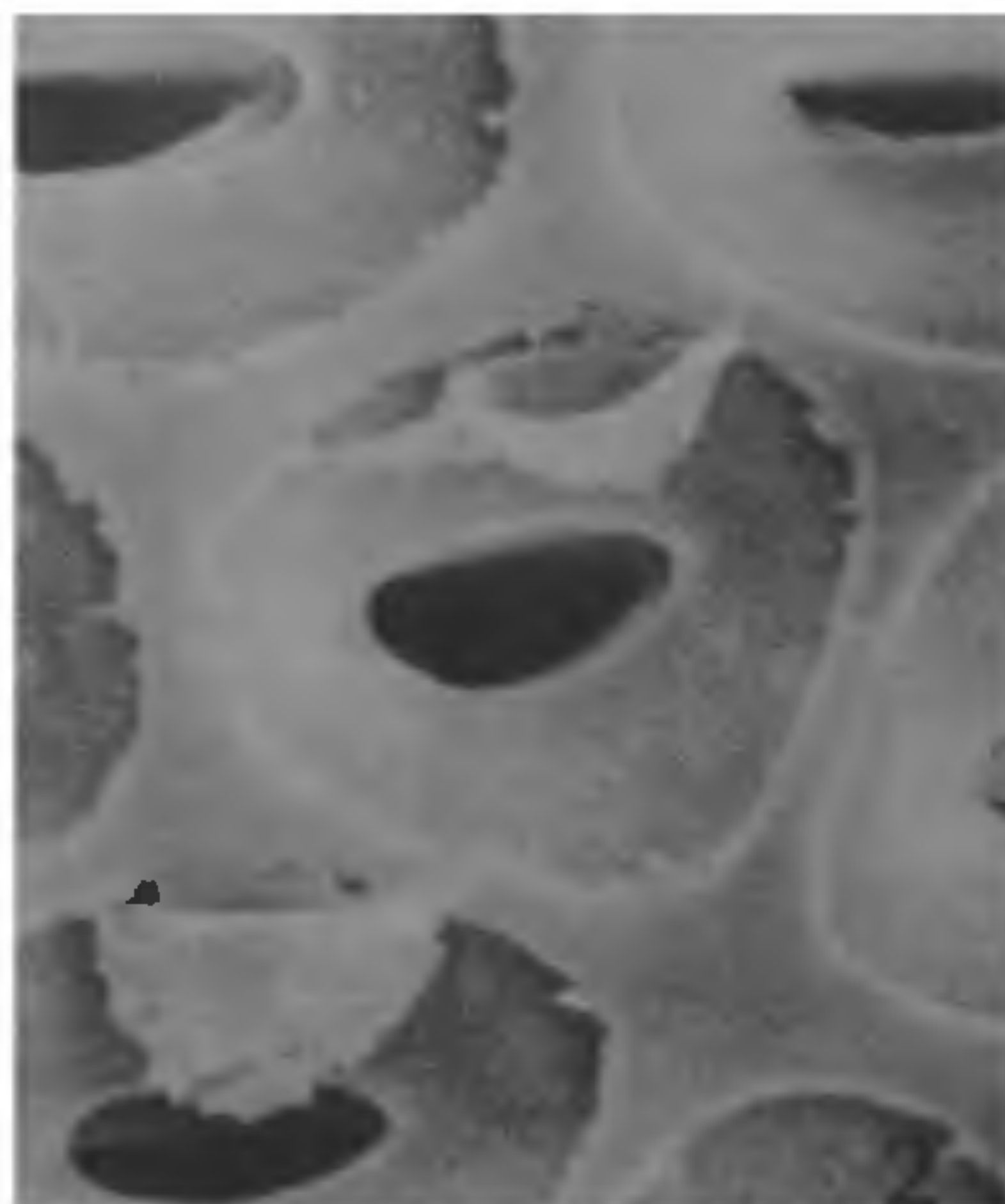
NON-VESTURED PITS OF *DELONIX ELATA* (L.) GAMBLE

K. RANJANI and K. V. KRISHNAMURTHY
 Department of Botany, Bharathidasan University,
 Tiruchirapalli 620 024, India.

SINCE Bailey's¹ classical work on vested pits, the Leguminosae (*Sensu lato*) was generally regarded as a family in which all taxa, with the exception of *Bauhinia* and *Cercis* (Tribe Cercideae) had vested pits. Subsequently *Koompassia*²⁻⁴, *Androcalymma*, *Apuleia*, *Dialium*, *Dicorynia*, *Distemonanthus*, *Martiodendron*, *Storckia*, *Duparquetia*, *Labichea*,

Petalostylis (all of Tribe Cercideae)⁴ were also reported to lack vested pits.

During a wood anatomical study of Caesalpiniaceae members, the pits of the two species of *Delonix*, *D. elata* and *D. regia* were found to be quite distinct from one another. In *D. regia*, all the pits had typical vestures which were dichotomously branching truncate structures arising from all sides of the roof of the pit chamber. They belong to type B form 1 vestures of Vliet⁵ (figure 1). In contrast, all the pits of *D. elata* were non-vestured (figure 2). It is



Figures 1 and 2. 1. *Delonix regia*. SEM of vested pits showing vestures (arrow) ($\times 7500$); 2. *Delonix elata*. SEM of non-vestured pits ($\times 5000$).

interesting that of the two closely related species of the same genus, one contained well-developed vestures while the other totally lacks it. *D. elata* is the only taxon of the tribe Caesalpiniae that has so far been reported to lack vestured pits.

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EFFECT OF STORAGE ON POLLEN GERMINATION AND POLLEN TUBE GROWTH

P. B. A. NANDA KUMAR, REKHA CHAUDHURY* and K. R. SHIVANNA

Department of Botany, University of Delhi, Delhi 110 007, India.

*National Bureau of Plant Genetic Resources, Indian Agricultural Research Institute Campus, New Delhi 110 012, India.

POLLEN storage is advantageous not only in plant breeding programmes but also in many areas of basic studies such as viability, anhydrobiosis and germination. Extensive studies on pollen grains using a variety of methods have showed considerable success in their storage in a wide range of species^{1,2}. In a majority of studies, on pollen storage, viability has been assessed on the basis of *in vitro* germinability. Pollen grains capable of *in vitro* germination are considered viable and capable of producing normal seeds. Lack of germination in stored seeds is generally the terminal manifestation of the loss of viability. Before this stage is reached the seedling vigour and its growth are affected. For effective pollination stored pollen grains should not only germinate but also produce vigorous pollen tubes.

Studies on the effect of pollen storage on pollen tube growth are limited. In a few systems storage has been shown to affect the division of the generative cell³ and the ability of pollen to incorpo-

rate nucleic acid precursors⁴. This paper reports the effect of storage on *in vitro* germination and the rate of pollen tube growth. As the cytology of pollen (2-celled or 3-celled at the time of shedding) influences these responses⁵, studies were conducted on a 2-celled taxon (*Crotalaria saltiana*) and a 3-celled taxon (*Brassica campestris*).

Plants of *Crotalaria saltiana* L. and *Brassica campestris* L. var. brown sarson were grown in field and the pollen grains were collected from freshly dehisced anthers. A small amount of pollen was used for *in vitro* germination (control) and the remaining sample was stored in a petri plate kept in a desiccator containing dry silica (RH < 10%) or saturated solution of MgCl₂ (RH 40–45%). A small amount of stored pollen was tested for *in vitro* germination and tube length at 7, 15, 30 and 45 days of storage for *Crotalaria* and at 16 and 55 days of storage for *Brassica*. The pollen grains were cultured in drops of germination medium (Brewbaker and Kwack⁶ for *Crotalaria* and Roberts *et al*⁷ for *Brassica*), ca 50 µl each on glass slides kept in petri plates lined with moist filter paper and were maintained at 25 ± 2°C. At each observation period two cultures were scored under randomly selected microscopic fields. Over 200 pollen grains were scored for germination and tube length of over 50 tubes was measured. The experiment was repeated using 4 batches of pollen, collected on different days. Although there were day-to-day variations in germination and tube lengths, even in the control, the general response of storage was uniform. Statistical significance was calculated by using Student's *t* test (for mean pollen tube length) and *d* test (for per cent germination)⁸.

The responses of pollen of both the taxa are presented in table 1. In *Crotalaria* pollen stored for 7 days showed delay in germination. However, the germination and tube length were comparable to those of fresh pollen in 2 h. Pollen stored for 15 days showed germination value comparable to control only by 3 h. Tube length of 15-day stored sample was significantly lower throughout the periods of observation. Pollen sample stored for 30 days showed poor germination; only about 20% of the pollen germinated even by 5 h after culture. The pollen tube growth was also poor.

In *Brassica* there was no germination beyond 0.5 h in any of the pollen samples. Germination of pollen stored for 16 days was comparable to that of the control. Tube growth was considerably faster in pollen stored at lower humidity. In pollen stored at higher humidity, faster tube growth was observed