



**Concentration Area:** Plant breeding

## **Pollen grain storage and loss of viability and floral setting in *Passiflora edulis* Sims**

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Asynchrony in the floral opening between the plants leads to the need to carry out storage of the pollen grains in breeding programs. In passion fruit (*Passiflora edulis* Sims), little information is known about pollen viability in storage conditions. This work aimed to evaluate the loss of viability of passion fruit pollen grains under storage conditions. Pollen from passion fruit grown in a greenhouse was collected in the morning daily and stored in silica gel in a refrigerator at 4 °C. The storage period ranged from 0 to 16 days. Pollinations using stored pollen and fresh pollen were carried out in vivo, avoiding self-incompatibility. Also, pollen viability was evaluated in vitro in an agar-based culture medium. The pollen grains were germinated in a germination camera, at 28 °C, with 24 hours of photoperiod. After 24 hours, germination was evaluated under an optical microscope, where each plate was subdivided into 4 quadrants and each quadrant corresponded to repetition, and the percentage of germinated pollen grains was counted. Storage leads to a rapid loss of pollen viability, reducing the flower setting from 75%, with fresh pollen, to 50% when using pollen with one day stored. No flower setting was observed when the pollination was carried out with pollen stored for more than six days. In vitro, pollen with storage over 10 days did not show viability. In fact, at five days of storage, pollen already showed the viability of around 3%. Despite this, it is possible to store passion fruit pollen for breeding purposes, since with the use of pollen with four days of storage, the floral setting was around 25%, and with five days of storage, the floral setting was around 15%.

**Keywords:** Pollen viability, Passion fruit, Plant breeding.