



Cryopreservation of Passion fruit seeds

Andressa Leal Generoso, Virginia Silva Carvalho, Naiara Lopes Brito, Kézia Moraes Vieira, William dos Santos Gomes, Roberta Aparecida de Sales, Clarissa Ribeiro Baptista, Renato Gobbi Vettorazzi

Though classified as orthodox, passion fruit seeds gradually lose their viability when preserved over long periods in cold chambers. Cryopreservation can overcome this problem, but there are two main obstacles: the initial water content in the seed and the regeneration of seedlings after the process. Therefore, the present study was conducted to evaluate the cryopreservation of passion fruit (*Passiflora edulis*) seeds with different initial water contents and the *in vitro* and *ex vitro* germination efficiency in seedling regeneration. The experiment was conducted as CRD in a 4 × 2 factorial arrangement that consisted of four initial water contents (5, 10, 15, and 25%) in passion fruit seeds, with and without immersion in liquid nitrogen (LN). After cryopreservation, part of the seeds from all treatments underwent *ex vitro* germination on paper rolls, while in another part, the embryos were isolated and cultured *in vitro*. Vigor and germination tests were conducted over 28 days. Among the cryopreserved seeds, those with a water content of 10% showed greater *ex vitro* and *in vitro* germination, and seeds germinated *in vitro* displayed a higher germination speed, greater uniformity, and 100% germination. For cryopreservation of passion fruit seeds, the water content of 10% and *in vitro* growth of isolated mature embryos is the most indicated combination to achieve higher germination rates quickly and uniformly. These results are important for the cryopreservation of passion fruit seeds for use in breeding programs.

Keywords: Water content, *In vitro* germination, *Ex vitro* germination.

Development Institutions: FAPERJ and UENF.