

Abstract 92

Hybrid Seed Production Via Stored Pollen Grains From Tomato Inbred Lines: Interactions Among Temperature and Storage Time and Their Effects on Pollen Viability

J.G. da S. Filho^{1,2*}, A.C. Torres^{1,2}, W.M. Nascimento¹ and L.S. Boiteux¹

¹Embrapa Hortaliças, CP-280, 70359-970, Brasília – DF, Brazil; e-mail:wmn@cnph.embrapa.br; ²Universidade de Brasília – UnB.

Storage of pollen grains of the parental inbred lines is a strategy of interest for both breeding programs and hybrid seed production systems of various Solanaceae species. In the present experiment, plants of the male inbred line of the tomato hybrid San Vito were grown under greenhouse conditions. The flowers were harvested at anthesis and the pollen grains were collected into micro-centrifuge tubes and then dried in a laminar flow hood for 48 hours. Tubes containing pollen grains were stored under the following temperature conditions: 4°C, -20°C and -80°C. In vivo assays for pollen viability (after 30, 60, and 120 days of storage) were carried out by visualizing the pollen germination through the stigma tissue via fluorescence microscopy with aniline blue. Fresh-collected pollen grains were employed as control treatments. Analyses of variance showed the effect of temperature at 60 and 120 days of storage on germination of pollen grains. No significant differences among the temperatures were observed at 30 days. The pollen grains stored at -20°C for 60 days showed no difference in viability when compared to the control treatment. Also, the pollen grains remained viable for up to 120 days at -20°C and -80°C. Therefore, storage at low temperatures might represent an alternative technique for conservation of tomato pollen grains, assisting the F1 hybrid seed production system and reducing the risk associated with the lack of flowering synchronization between male and female parents.

Keywords – germination, storage