

Study of the pollen storage technique on citrus pollen viability

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One of the most important methods from pollen parent trees always are a breeding citrus breeding programmes is hybridization. Although, providing pollens for and hybridization problems. For overcoming this problem pollen grains must be prepared and stored at the low temperature before controlled hybridization. This is obvious that such pre-prepared pollens should have appropriate viability at the time of hybridization. In consider to importance of carrying out citrus breeding programmes for releasing new cultivars to the citrus industry, the present research was carried out in order to explore the best method of pollen preservation and storage. Long-term pollen storage studied on pollen from mature citrus tree cultivars including Shell-Mahalleh, Yuzu, Troyer and Citromelo. Experimental design used was a factorial design with two factors based on randomized complete block design with 3 replications. Factor one was 3 method of storage (room temperature, refrigerator and fridge) and the second factor was 4 mentioned cultivars. In-vitro viability test was performed on pollens after 7, 15, 30, 60 and 140 days storage in the room temperature ($+25^{\circ}\text{C}$), freezer, refrigerator ($+4^{\circ}\text{C}$) and (-18°C).

Results based on analysis of variance of data showed significant differences at 1% level between the effects of treatments (storage methods), cultivar and interactions between two factors. Control treatment (fresh pollen) and 7 days storage treatment at freezer showed highest germination percentage (38.77%

correlated with concentration. Naphthalenacetamide at the concentration of 100mg/l had the highest retardation effect on ripening.

Fruit drop was increased due to treatment. More fruits dropped at higher concentration. The highest fruit drop was associated with 2,4-D at the rate of 30 mg/l.

Significant difference were observed between two locations for most characteristics. However, there was no interaction between locations and treatment, using combine analysis, This shows the constant effect of growth regulators in two locations. It seems that differences between treatments is due to climatic variations.