Study on determination of the best media for in-vitro citrus pollen viability test

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In the fruit tree breeding programs, pollen storage and its use is an important task. Therefore this is important to be assured of pollen viability after storage period. In-vitro pollen germination test is one of the important methods of pollen viability test. The objective of the present research was determination of the best media for in-vitro citrus pollen viability test. *Experimental design used* was a factorial design with four factors based on randomized complete block design with 3 replications. Factor one (A) was 4 levels of boric acid (0, 50, 100 and 200 ppm), factor 2 (B) was 3 levels of calcium nitrate (0, 200 and 300ppm) and factor 3 (C) was sucrose concentrations (15 and 25%) and factor four (D) was cultivars Sheli-Mahalleh, Yuzu, Troyer and Citromelo. *In all treatments* 1% agar, 200 ppm magnesium sulfate and 100 ppm potassium nitrate were added.

Results showed that the differences between effects of all factors (treatments), interactions effect between two, three and also four factors were significant at 1% level. Note that the exceptions were belonging to interaction effects between factor B and C, at 5% level and interaction effects between ACD was not significant. In conclusion, results showed that the best media for citrus pollen germination test of studied cultivars are 200 ppm boric acid, 300 ppm calcium nitrate, 15% sucrose, 1% agar, 200 ppm magnesium sulphate and 100 ppm potassium nitrate.

and 26.93% respectively) and classified in-group a and b respectively. In addition among studied cultivars Shell-Mahalleh and Yuzu showed 18.94% and 15.49% germination and grouped to classes a and b respectively.

Interaction effects of control x Shell-Mahalleh, control x Yuzu, 15 days storage in freezer x Yuzu and 7 days storage in freezer x Shell-Mahalleh showed 50%, 46%, 42% and 36.16% germination and located in groups a, b, c and d respectively. Also results from 140 days pollen storage of Shell-Mahalleh cultivar showed 22.2% germination in the viability test assay. This amount of germination in considers to poor long term pollen storage of citrus trees is very important in citrus breeding programs.