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Viability and *in vitro* germination of pollen of six pistachio (*Pistacia vera* L.) cultivars grown in Maru agricultural station, Northern Jordan

Abdallah Aldahadha, Khaldoun Al Sane, Ahmad Bataineh and Zayed Hammouri
National Agricultural Research Center, Jordan

This study was conducted on six pistachio cultivars (Lazaourdi, Nab-El Jamal, Boundiki, Batouri, Marawhi and Aschouri) to investigate the percentage of pollen viability and *in vitro* germination. Pollen viability was tested by using 1% 2,3,5-triphenyltetrazolium chloride (TTC) and 60% sucrose. In addition, *in vitro* germination medium was used to test pollen, which consisted of 1% agar, 15% sucrose and 100 ppm boric acid (H_3BO_3). The results indicated that there was a significant interaction between pollen viability of pistachio cultivars and storage period. The results showed that the fresh pollen of cultivars Batouri and Lazaourdi had significantly the highest viability (87%) and *in vitro* pollen germination (69.7%); respectively indicating that such cultivars could be used as best pollinators. On the other hand, cultivar Nab-El Jamal had the lowest viability (43.7%) and *in vitro* pollen germination (40.3%). Results of viability for all fresh pollen cultivars were poorly linearly correlated ($r^2=0.197$) with the results of *in vitro* germination test. It was found that pollen viability for all cultivars were significantly reduced when pollen stored at 40 for one month. However, pollen germination percentage was zero for all pistachio cultivars after one month of storage. This finding suggests that the storage method in refrigerator (i.e: at 40) for one month is not effective for *in vitro* pollen germination. Hence, further research is required to examine pollen germination for less than a month under refrigerated conditions, which could be used for artificial pollination purposes.

Cultivar	control	Storage for 1 month
Lazaourdi	66.7 b	43.0 d
Nab-El Jamal	43.7 d	34.3 e
Boundiki	55.0 c	35.7 e
Batouri	87.0 a	53.7 c
Marawhi	65.0 b	46.0 d
Aschouri	85.0 a	67.0 b
Standard error	1.64	3.24
LSD (0.05)	7.547	7.547

Table 1: Pollen viability percentage of six pistachio cultivars for two storage periods

Recent Publications

1. Acar I, Ak B E and Sarpkaya K (2010) Effects of boron and gibberellic acid on *in vitro* pollen germination of pistachio (*Pistacia vera* L.). African Journal of Biotechnology 9:5126-5130.
2. Aka B E, Acar I, Sakar E and Goursoz S (2016) The importance of Pistacia species for pistachio production in Turkey. Acta Horti 183-188.
3. Ateyyeh A F (2012) Effect of storage method on date palm and pistachio pollen viability. Jordan Journal of Agricultural Sciences 8:573-582.

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4. Bahramabadi E Z, Jonoubi P and Rezanejad F (2018) Some cytological and physiochemical features relating to non-storability of pistachio (*Pistacia vera* L.) pollen. Grana 1-8.
5. Gill M (2014) Pollen storage and viability. International Journal of Botany and Research 4:1-18.

Biography

Abdallah Aldahadha has a PhD in Plant Ecophysiology from University of New England, Australia. He is working in Maru Agricultural Station which belongs to National Agricultural Research Center (NARC)/ Jordan. He is doing a project with improving the yield of pistachio trees. He has MSc in Horticulture from University of Jordan. During that period, he worked with a project of morphological and biochemical characteristics of olive pollen. He has academic experience from AlJouf University, Saudi Arabia as Assistant Professor in plant biology and from Sebha University, Libya as Assistant Lecturer in Horticulture Department-Faculty of Agriculture. He has several publications in international journals and he has attended several international conferences in USA and New Zealand.

abdallah.aldahadha@narc.gov.jo

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