Iranian Journal of Horticultural Science and Technology 17 (4): 463-472 (2017)

Evaluation of Pollen Germination and Fruit Set of Eight Iranian Pomegranate Cultivars

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Assessment of the germination behavior of pollen is effective on increasing yield and quality and also selection of suitable cultivars. This study was carried out to evaluate the germination of different age pomegranate pollen in perfect and male types flowers as well as determinate fruit set with pollination of 'Malas Yazdi', 'Rabab-e-Neyriz Fars', 'Poost Siah', 'Bihaste Dane Ghermez Ravar Kerman', 'Bihaste Kam Bar Najaf Abad', 'Bihaste Sangan Khash', 'Goroch Tafti' and 'Pishva Varamin'. The highest pollen quantity obtained in perfect flowers of 'Goroch Tafti'. The highest pollen germination percentage and rate were observed in 'Pishva Varamin', 'Goroch Tafti', 'Bihaste Sangan Khash', 'Malas Yazdi', 'Rabab-e-Neyriz Fars' during first-six hours after releasing from anthers, although about 'Goroch Tafti', germination percentage unaffected up to 12 hours after release. Regarding to study of cultivar and flower type, the highest germination percentage obtained in male flowers of 'Goroch Tafti'. Simple effect of pollen age, showed that germination percentage significantly reduced 6 h after release. Evaluation of effect of cultivar on germination rate showed the highest value in 'Pishva Varamin', 'Goroch Tafti', 'Bihaste Sangan Khash' and 'Malas Yazdi'. The results indicated that 'Malas Yazdi and 'Rababe Neyriz' flowers pollinated with 'Bihasteh Ravar Kerman' and 'Goroch Tafti' were led to 65 to 80 percent fruit set from fertilization fruits, respectively. Free pollination (control) with 90 percent fruit set in comparison with self-pollinated of commercial cultivars was significantly different at 1% level of probability. Therefore, it is concluded that some cultivars had low germination percentage and in some others pollen age had most effect on germinability that could be respected in variety selection for plantation. So compatibility pollen can affect fruit set and yield.

Key Word: Fruit set, Germination, Perfect flower, Pollen, Pomegranate.

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[DOR: 20.1001.1.16807154.1395.17.4.8.0]