

Investigation the effect of pollen grain type on mango (*Mangifera indica*) fruit set and its quality

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Received: 8 March, 2011

Accepted: 6 November, 2011

Abstract

Mango is one of the tropical crops cultivated in the south of Iran, where it has fewer yields in comparison with other regions of its cultivation. According to reports, cross pollination will increase the yield of this plant. The objective of this study was to compare the effects of selfing, control crossing and open pollination on pollen tube growth and fruit setting in three cultivated mango genotypes in Iran. The inflorescences in some trees were bagged after related pollination treatment. Sampling was done from the pollinated flowers three and seven days after pollination. Pistils were stained with aniline blue and the situation of pollen tube growth was studied using a fluorescence microscope. The final fruit production was counted 15 and 90 days. After pollination, mean fruit length, width, weight and TSS were recorded in all treatments. In all genotypes, selfing inflorescence prevented fruit set completely. There was significant difference in pollen tube growth and fruit set of self crossing and open crossing treatments. The maximum fruit set was observed in genotypes one and three with pollen grain of genotype two. The results of this study showed that the source of pollen can influence quantity and quality characteristics of mango, so much so that self-pollination usually results in significantly lower crop production than cross-pollination in mango. In addition to higher production of controlled cross pollination with cross pollen grain, the selection of proper parent plants should be done with sufficient care in order to improve production efficiency in this crop.

Keywords: *Mango, Cross compatibility, Fruit, Pollen grain, Pollination, Self compatibility*