

P-26 (214)**EVALUATION OF THREE EUROPEAN PEAR (*PYRUS COMMUNIS* L.) CULTIVARS AND GENOTYPE CHILLING REQUIREMENTS UNDER CONTROLLED ENVIRONMENT CONDITIONS**

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Different fruit tree species require different amounts of chilling for flowering. The knowledge on the chilling and heating requirements is necessary for breaking dormancy of flower buds and further suitable bloom in the framework of manipulation of fruiting and proper orchard management decisions. The aim of this research was to assess the rest completion of some European (*Pyrus communis* L.) and Asian (*Pyrus serotina* Rehd.) genotypes and cultivars under controlled environment conditions. For this purpose and in order to achieve and improve these objectives three commercial cultivars and genotypes were used. European pear cultivars and genotypes were 'Sebri', 'Shahmiveh' and A-95 genotype respectively. Mature trees were grown on seedling rootstocks in the pear collection orchards at Tarbiat Modares University (TMU), Iran. Note that A95 is a promising chance seedling that selected through the pear breeding program at TMU. Shoot cuttings with enough flower buds (30±5 cm long) were removed from the studied mature trees on November, 2017, to determine their chilling requirements. The cutting samples were kept in cotton bags at 4±1°C in a refrigerator for 0, 300, 600, 800, 1000 and 1200 hours. The experiment was arranged in the factorial design based on complete randomized design (CRD). Each treatment consisted of 3 replications of 5 cuttings. Each treatment was transferred to the controlled room temperature where placed cuttings into the glass bottle in water, so the base of cuttings was re cutted in order to prevent the blockage of water absorption. At three days intervals, the flower bud anthesis counts were taken for few weeks. Opening of 50% of the buds was assumed as an adequate sign of chilling requirements. Results based on the observations on the anthesis for each chilling hour treatment and studied cultivars and the genotype showed that no significant differences between the studied cultivars and genotype. The obtained results showed that the studied cultivars 'Sebri', 'Shahmiveh' and A-95 require 1000 to 1200 hour chilling for flowering. It was no sign of any bud break at 300 and 600 hours chilling treatments, although once the chilling hours increased up to 1000 hours, all flower buds start to open after 14 days in suitable room temperature. Note that, at 1200 hours chilling treatment, all flower buds was opened after 7 days in room temperature. In conclusion, 'Sebri', 'Shahmiveh' and A-95 needs more than 1000 hours chilling in order to produce suitable open flowers for higher fruit production.

Keywords: Chilling requirement, pear, flower bud, Sebri, Shahmiveh, A95 promising pear genotype