

Evaluating the Suitability of *Manilkara zapota* (Sapodilla) and *Madhuca longifolia* (Mee tree) Seedlings as the Rootstock for Grafting *Manilkara hexandra* (Palu) in Sri Lanka

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Abstract

Manilkara hexandra (Palu) is an underutilized fruit in Sri Lanka, which is propagated by seeds. However, low germination due to the hard seed coat and slow growth rate hinders plant distribution. Hence, an experiment was carried out to investigate the suitability of the *Manilkara zapota* (Sapodilla) and *Madhuka longifolia* (Mee) rootstock for grafting the *M. hexandra*. Two rootstocks *M. zapota* and *M. longifolia* were used with ten replicates and three plants per replicate. The experiment was conducted at Horticultural Crop Training and Development Institute, Bibile, Sri Lanka, during December 2021 to May 2022. Graft success percentage was measured three weeks after grafting. Graft survivability percentage, average number of leaves per graft, and average shoot length were measured weekly up to six weeks from three weeks after grafting. Data were analyzed using two-sample t-test using Minitab 19. The significantly highest percentage of graft success (70.79%) was observed in *M. zapota* compared to the *M. longifolia* (8.32%) at the end of three weeks after grafting. Although, *M. longifolia* were not survived after five weeks of grafting. Significantly highest graft survival percentage (74.99%) was observed in *M. zapota* at the end of the fourth week. It was gradually decreased and recorded as 35.4% in the sixth week and kept constant until the evaluated period. The average number of leaves per plant and average shoot length were recorded as 2.1 and 0.48 cm, respectively, six weeks after grafting in *M. zapota* rootstock. The results indicated that among the two seedling rootstocks of *M. zapota* and *M. longifolia*, *M. zapota* shows the highest graft compatibility.

Keywords: Grafting, *Madhuka longifolia*, *Manilkara hexandra*, *Manilkara zapota*, Vegetative Propagation

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