

Effect of age of mango rootstocks with different AM fungi on growth and grafting success

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ABSTRACT

An experiment was conducted to assess the effect of mango rootstocks with different AM fungi, *i.e.*, *Gigaspora margarita*, *Glomus fasciculatum*, *Acaulospora laevis* and *Glomus monosporum* along with uninoculated control on growth and grafting success. The inoculation of *Gigaspora margarita* and *Glomus fasciculatum* resulted in highest germination (47.19%), while uninoculated stocks had recorded significantly highest germination index (3.84), *Gigaspora margarita* and *Acaulospora laevis* inoculation stones took significantly lower days for initiation of germination (9.25 days) and completion of germination (46.75 days). Interaction of 10 months old rootstocks with *Gigaspora margarita* recorded maximum vegetative parameters. Significantly maximum graft-take, per cent survival of grafts, sprout height, number of leaves and graft diameter were exhibited in different aged rootstocks inoculated with AM fungi when compared to non-AM rootstocks.

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Mango is most popular among the tropical fruits of the world and is rightly described as 'king of fruits' owing to its delicious taste, captivating flavour and attractive aroma. The mango grafts are raised on seedling rootstocks of unknown source resulting in variation among the grafts. It is essential to standardise the rootstocks for different mango cultivars in different agro-climatic regions to have uniform growth, high yield, good quality fruits and dwarf stature of plants for high density planting. It is known fact that the rootstocks showed marked effects on the growth and subsequent bearing habit and quality of fruits in most of the fruit crops. Hence, there is need to select suitable rootstocks of locally available variety. Raising of rootstocks and proper use of rootstock is also important. Now-a-days, mango is commercially propagated by softwood grafting with varied degree of success. It needs the proper age of rootstocks for softwood grafting. Positive response to inoculation with arbuscular mycorrhizal (AM) fungi is well established for wide variety of horticultural crops (Moroneck *et al.*, 1981 and Bagyaraj, 1992) and also inoculation of the rootstocks with efficient AM fungi may hasten their growth and make them ready for grafting in much lesser time, which in turn improve growth rate. Efficient fungi thus selected can be used for inoculation in mango nurseries and have some beneficial effect on early germination, growth and graft-take (Santosh *et al.*, 2004; Bassanagowda, 2005 in mango and Venkat *et al.*, 2004 in citrus). Keeping this in view, an experiment was conducted to study the effect of age of mango rootstocks with different AM fungi on growth and grafting success by inoculating different AM

fungi in mango.

MATERIALS AND METHODS

The present investigation was carried out at Department of Pomology, Kittur Rani Channamma College of Horticulture, Arabhavi. The design of the experiment adopted was completely randomised factorial design with different AM fungi, *Gigaspora margarita*, *Glomus fasciculatum*, *Acaulospora laevis*, *Glomus monosporum* and without AM fungi as first factor and five second factors comprising of two, four, six, eight and ten months old rootstocks. Scions of one season old shoots of pencil thickness, free from pest and disease were selected from 20 years old grafted Alphonso trees. The observations were recorded daily for germination parameters, three months after grafting (MAG) for graft success and graft survival percentage and three months for graft growth parameters

RESULTS AND DISCUSSION

Out of four fungi used for germination of mango stones, there existed varied host response on germination significantly superior over control which had recorded 39.76 per cent germination. Inoculation of *Gigaspora margarita* and *Glomus fasciculatum* (47.19 each) recorded significantly higher germination followed by *Glomus monosporum* (45.62). Initiation of germination with the AM fungi was also earlier as compared to control (13.00 days), *i.e.*, early germination was observed with *Gigaspora margarita* *Acaulospora laevis* (9.25 days each), *Glomus fasciculatum* (10 days) and *Glomus*