Synergistic effect of *Glomus fasciculatum* and bioformulations for softwood grafting in jamun (*Syzygium cumini* Skeels) under *in-situ* and *ex-situ* inorganic conditions

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ABSTRACT

An experiment was conducted at Horticulture Research Station, Bijapur (Tidagundi) to know the influence of *Glomus fasciculatum* and bioformulations on soft wood grafting in jamun. Rootstocks treated with *Glomus fasciculatum* had registered highest graft success (31.55% and 46.56% in both *in-situ* and *ex-situ*, respectively) and graft survival (30.93% and 89.1% in *in-situ* and *ex-situ*, respectively). Among different sub-treatments, stocks treated with microbial consortia had recorded significantly highest graft success (32.76% and 49.68% in both *in-situ* and *ex-situ*, respectively) and graft survival (31.55% and 46.56% in both *in-situ* and *ex-situ*, respectively).

MATERIALS AND METHODS

An investigation was carried out during 2005 to 2007 at Horticulture Research Station, Bijapur (Tidagundi) to know the combined influence of *Glomus fasciculatum* and bioformulations on soft wood grafting of jamun under both *in-situ* and *ex-situ*. The experiment consisting of 10 treatment combinations consisting of two main plots (M1 with *Glomus fasciculatum*, M2 - Un inoculated) and five sub plots (S1 - Amrit pani, S2 - Microbial consortia, S3 - Panchagavya, S4 - Inorganic fertilizer (60:30:90 gram N: P: K per plant per year), S5 - Control) was laid out in split plot design with three replications.

The AM fungus (*Glomus fasciculatum*) was inoculated to rootstocks at the time of sowing. Mature scions were cured two weeks prior to grafting day by defoliating in order to activate the terminal buds. The AM fungus inoculated rootstocks were subjected to softwood grafting at six month after sowing. Parameters of the grafts, such as graft-take after three months of grafting, graft survival, sprout height were recorded at monthly intervals.

Bioformulations were prepared and applied as soil drenching immediately after irradiation from sowing up to three months after grafting at three per cent concentration. To prepare Amrit pani Ten kilograms of cow dung and 250g cow ghee were mixed properly. To this mixture, 500g of honey was added and mixed thoroughly. This mixture was kept for incubation for 24 hours (Pathak and Ram, 2004) before use. Microbial consortium consisted of 15 local isolates of bacteria, fungi and actinomycetes comprising of bioinoculants, PGPRs and biocontrol agents in cow dung slurry. Whereas