



Host preference studies of different AM fungi on fruit crops

S.S. YUMNAM, G.S.K. SWAMY, S.R. SINGH, M.A. HASAN AND B.C. DAS

ABSTRACT

An experiment was carried out during September 2009 to December 2009 at Department of Agricultural Microbiology, Kittur Rani Channamma College of Horticulture, Arabhavi in Gokak taluk of Belgaum district, Karnataka to study the host preference of different AM fungi on fruit crops like fig, lime and passion fruit. The fig cuttings inoculated with *Acaulospora laevis* recorded significantly maximum number of sprouts at 30 (4.48), 60 (4.17) and 90 DAP (3.33). Fig cutting inoculated with *Acaulospora laevis* recorded significantly maximum leaves at 90 DAP (6.67). The lime seedling inoculated with *Acaulospora laevis* recorded significantly maximum leaves at 60 (2.33), 90 (4.00) and *Glomus monosporum* 120 DAS (5.33). The passion fruit seedling treated with *Sclerocystis dussii* recorded significantly maximum leaves at 60 (2.33), *Glomus monohofis* at 90 (4.83) and 120 DAS (7.67). The lime seedlings inoculated with *Acaulospora laevis* recorded significantly maximum height at 60 (2.22cm), 90 (3.52 cm) and 120 DAS (4.30 cm). The passionfruit seedling inoculated with *Sclerocystis dussii* recorded significantly maximum height at 60 (3.12 cm), *Glomus monohofis* at 90 (5.08 cm) and 120 DAS (9.67 cm). The lime seedlings inoculated with *Acaulospora laevis* recorded significantly highest diameter at 60 (0.87 mm), *Glomus monosporum* at 90 (1.02 mm) and *Acaulospora laevis* at 120 DAS (1.45 mm). The passionfruit seedlings inoculated with *Gigaspora gigantia* recorded significantly highest diameter at 60 (1.01 mm), *Glomus monohofis* at 90 (1.27 mm) and 120 DAS (2.10 mm).

See end of the article for authors' affiliations

Correspondence to:

S.S. YUMNAM

Department of Fruit Science, K.R.C. College of Horticulture, Arabhavi, BELGAUM (KARNATAKA) INDIA
Email : somifrt@rediffmail.com

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Arbuscular mycorrhizae (AM) are a symbiotic association between the roots of terrestrial plants and fungi of the order Glomales (Zygomycetes). AM fungi are thought to have a wide host range because these 150 species have been found in more than 225000 species of plants. Merryweather and Fitter (1998) found AM fungi belonging to three genera (*Glomus*, *Acaulospora*, and *Scutellospora*) in bluebell (*Hyacinthoides non-scripta*) grown in a field. On the other hand, *Sciaphila tosaensis* (Triuridaceae), an achlorophyllous plant, was found to be colonized by single species belonging to *Glomus* (Yamato 2000) indicating the host-AM fungal preference or specificity. Most studies showing the preference of AM fungi were based on per cent of colonization, number of spores propagated, or growth performance by AM fungi. Sanders and Fitter (1992) reported that spore production of AM fungi responded differently according to the host species. Incidence of AM association in papaya has been reported by Ravi *et al.* (1995) and Khade *et al.* (2002).

MATERIALS AND METHODS

An investigation entitled host preference studies of different AM fungi on fruit crops was carried out during September 2009 to December 2009 at Department of Agricultural Microbiology, Kittur Rani Channamma College of Horticulture, Arabhavi in Gokak taluk of Belgaum district, Karnataka. The materials used, techniques adopted and observations recorded during the course of experiment are presented in this chapter. The design of the experiment adopted for the experiment was randomised block design with three replications. The non-descriptive uniform size lime and passionfruit seeds were obtained from the orchard of Department of Fruit Science, Arabhavi. Seeds were extracted and then cleaned to get the seeds were free from adhering pulp and then sown in the polybags of 8 x 12 cm size containing potting mixture of soil, sand and FYM in the ratio of 1:1:1. AM fungi inoculation was done by spreading five grams of inoculum uniformly at five centimetre depth after putting a thin layer of soil on the inoculum. The seeds were placed and