Application of Mycorrhizae Isolated from *Cymbidium bicolor* into the Roots of Chilli (*Capsicum annum*) and Onion (*Allium cepa*) to improve their Productivity

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Cymbidium bicolor Lindl. is an orchid, found as epiphytes on Palmyrah (*Borassus flabellifer*). The association of Mycorrhizae in the roots helps *C. bicolor* to survive during drought. Therefore, this investigation was carried out to study its compatibility and symbiosis with Chilli (*Capsicum annum*) and onion (*Allium cepa*) plants. The mycorrhizal fungi associated with the *C. bicolor* Lindl. is *Glomus* spp. which improves the seed germination and other plant quality parameters. Hence, during transplanting, plant roots can be dipped in *Glomus* spp. solution to initiate symbiosis in the root system. The *C. bicolor* plants were collected from Nelliyady, Chunnakam, Manippay, Chavakachcheri and Karaveddy in Jaffna, Sri Lanka during February-March 2017. White actively growing spongy root tips attached with *C. bicolor* were randomly collected. The fungi were isolated and cultured on yeast extract peptone agar medium supplemented with two to five drops of Cholorompheniсol (5%) for five days at room temperature. *Glomus* spp. was identified by morphology and growth pattern of mycelium and produced pure culture was subjected to sub-culture. Using subculture, fungal solution was prepared. The roots of seedlings (four weeks after germination) were dipped in to fungal solution for three hours and planted according to Completely Randomized Design. Four treatments such as *Glomus* spp. alone, *Glomus* spp. with *Trichoderma viride*, *T. viride* alone and control tests were carried out and replicated five times. Plant height was measured weekly until plants were uprooted and uprooted plant's fresh weight, plant dry weight, root coverage, number of leaves and root lets were measured. Results of the study showed that *Glomus* spp. alone applied chilli plants and onion plants had higher number of leaves, root length, plant height, number of root lets, plant fresh weight and, plant dry weight than other treatments (*Glomus* spp. + *T. viride*, *T. viride* alone and control). It was also observed that *Glomus* spp. and *T. viride* combinations gave lower result than *Glomus* spp. and *T. viride* alone treatments. Thus *T. viride* could have suppressed the activity of *Glomus* spp. From this study it can be concluded that dipping of seedlings in *Glomus* spp. solution will improve the productivity of chilli and onion plants.

Keywords: *Cymbidium bicolor* Lindl, inoculation, isolation, mycorrhizae, productivity, symbiosis

Reference

1. A M Denisiya and G Mikunthan,2017 Application of Mycorrhizae Isolated from *Cymbidium bicolor* into the Roots of Chilli (*Capsicum annum*) and Onion (*Allium cepa*) to improve their Productivity. ***Proceeding of the 3rd international conference on Dry Zone Agriculture,*** 3(1):59