Effect of humic acid and mycorrhiza fungi on some characteristics of "Speedy green" perennial ryegrass (*Lolium perenne* L.)

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Abstract

To investigate the effects of humic acid and mycorrhiza fungi on visual quality, some characteristics of roots and chlorophyll changes of ryegrass, an experiment was carried out in Research Greenhouses of Department of Horticultural Science, University of Tehran, in spring and summer of 2009. The ryegrass was "Speedy green" perennial ryegrass, which is composed of three lolium (*Lolium perenne* L.) cultivars. After autoclave of the soil, addition of inoculums of mycorrhiza fungi (*Glomus mosseae* and *Glomus intraradices*) to pots and sowing of the seeds, plants were given enough time to grow. After establishment, humic acid was sprayed on leaves at concentrations of 0 (as control), 100, 400 and 1000 mg/L, and the above-mentioned characteristics were measured until the 9th week after starting the treatments. The results showed that humic acid was significantly effective on chlorophyll a, b, and total chlorophyll content, root length and fresh and dry weights of roots; but had no effect on visual quality, root volume and colonization percentage. Mycorrhiza fungi were effective on all characteristics. Among the mycorrhiza fungi, *G. mosseae* was better than *G. intraradices* on root factors, while had no positive effect on aerial parts. Colonization percentage was almost equal in both fungi. The effect of mycorrhiza fungi on the above-mentioned characteristics, with respect to the inoculums solution, was probably due to the production of hormone-like effects and enhanced hypha density in soil.

Keywords: Ryegrass quality, Humic substances, Root development, Colonization.

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