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EFFECTS OF APPLICATION OF ORGANIC, BIOLOGICAL
AND CHEMICAL FERTILIZERS ON SEED YIELD OF
CORIANDER (Coriandrum sativum)

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Coriander (Coriandrum sativum) is an annual medicinal plant that its seeds and leaves have many food, pharmaceutical and cosmetics applications [6]. Therefore, study the agronomical aspects of this plant is so important. It was reported that plant nutrition management has significant effects on quantitative and qualitative indices of coriander. In order to study the effects of single and combined application of organic, biological and chemical fertilizers on quantitative and qualitative characteristics of Coriander, an experiment was conducted based on a Completely Randomized Block Design with three replications and 12 treatments at Research Station, Faculty of Agriculture, Ferdowsi University of Mashhad, Iran, in year 2011. Treatments included: 1- mycorrhiza (Glomus intraradices), 2- biosulfur (Thiobacillus sp.), 3- chemical fertilizer (NPK), 4- cow manure, 5- vermicompost, 6- mycorrhiza + chemical fertilizer, 7- mycorrhiza + cow manure, 8- mycorrhiza + vermicompost, 9- biosulfur + chemical fertilizer, 10- biosulfur + cow manure, 11- biosulfur + vermicompost and 12-control. Results showed that the highest number of umbel per plant (19) and number of umbelest per umbel (5) were observed in mycorrhiza treatment. These results are accordance with the results of Kapoor et al. [5]. The highest number of seed per umbel (22), number of seed per plant (366), seed yield (1468 kg/ha) and harvest index (55%) were obtained in mycorrhiza + chemical fertilizer treatment. It was reported that mycorrhiza improves growth indices and yield of plant by penetrating in the micro pores of soil and increasing root absorption area [1, 2, 3]. Combined application of biosulfur with chemical fertilizer had a noticeable effect on 100-seed weights and biological yield indices. The highest essential oil percentage and essential oil yield were observed in mycorrhiza and mycorrhiza with chemical fertilizer treatments, respectively (0.2% and 2602 g/ha). Overall, results of this experiment showed that application of biological fertilizer especially mycorrhiza had a significant effect on improving of quantitative and qualitative seed yield of Coriander. Furthermore, the combined application of mycorrhiza with organic and chemical fertilizer had better effects than their single application. It has been reported that combined application of nutritional sources increase plant growth through increasing of soil nutritional balance [4].

Keywords: Biosulfur, Mycorrhiza, Essential Oil, Essence Yield

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POSSIBILITY OF USE ESSENTIAL OILS INSTEAD ANTIBIOTICS IN ORGANIC AQUACULTURE

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Because intensive fish farming provides various diseases and parasites ideal conditions to spread, many infectious diseases are treated with large quantities of antibiotics added to feed. Increased public awareness of the negative effects caused by overexposure to synthetic chemicals has led to the search for “green solutions” such as organic food products (Abutbul et al, 2004). Some studies on the antimicrobial activity of the essential oils of some Thymus spp. have shown activity against viruses, bacteria and fungi (Rasooli et al., 2006). Results of Iranian study suggests that the essential oil of Satureja bachtiarica is a potential source of natural antibacterial against Streptococcus iniae from cutaneous lesions of rainbow trout Oncorhynchus mykiss (Pirbalouti et al., 2011). A new report from China (Yea et al., 2009) led to a new perspective on the use of natural extracts in aquaculture. This study reported that extract from Cinnamomum kanehira sowed antibacterial effects against different pathogens of aquatic animals. In future, in Serbia as agriculture country, such formulations may represent alternative therapeutic treatments in aquaculture and hatcheries.

Keywords: essential oils, aquaculture, antibiotics

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