

Response of Two Lentil Varieties to Bio-Enriched Compost Tea

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Abstract: Two field experiments were conducted at Gemmeiza Agricultural Research Station, El-Gharbia Governorate (ARC) located at 30° 44' 53.279" N for Latitude and 31° 7' 50.843" E for Longitude, Egypt, during the two winter seasons of 2010/11 and 2011/12 to evaluate the response of two lentil varieties (Sinai1 and Giza9) to different application rates of bio-enriched compost tea (zero, 100, 200 and 300 L/fed). Lentil seeds were inoculated with gamma irradiated vermiculite-based inocula for two *Rhizobium* strains (mixture of TAL168 and ICARDA139), prior to sowing. Aerated bio-enriched compost tea levels were sprayed in three equal split doses after 30, 45 and 60 days from sowing. Spraying was made to coat the leaves surface and to drench the soil around plants. The obtained results revealed that: (1) Giza 9 variety significantly surpassed the new released early maturing variety (Sinai 1) in root nodulation, all vegetative growth characters and all yield components as well as lentil yield (seeds and straw) and seed crude protein. (2) Significant predictable improvement in lentil nodulation status, all growth characters, lentil yield and its components due to the stimulatory effect of bio-enriched compost tea treatments. However, results evident that the synergy of using higher doses of bio-enriched compost tea (200 or 300L/fed), relatively to the untreated plants or plants treated with 100 L/fed. (3) Data showed significant interaction between bio-enriched compost tea treatments and the varieties. Data exerted that addition of compost tea caused promotive impression in all studied characters, particularly in case of using 200 or 300 L/fed with Giza 9 variety, as was reflected by its highest values in comparison to other tested combinations or untreated ones. From these results, it could be concluded that the combination between Giza 9 variety and the stimulating dose of bio-enriched compost tea (200 L/fed) may be acting as a good practice for improving the most growth and yield characters and leading to healthier food, particularly under sustainable agricultural systems. However, these trials are in need to be repeated under different soil conditions to reach the level of recommendation and to clarify the best compost tea rate required for each crop.

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