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Influence of Mixed NPK Fertilizers with Foliar Spray of Active Dry Yeast on Caraway under Newly Reclaimed Soil Conditions

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SUMMARY

Field experiment was carried out in the Experimental farm (Dimo), Faculty of Agriculture, Fayoum University, during two seasons of 2012/2013 and 2013/2014 to investigate the effect of macronutrient fertilization at rates 0, 50, 100 and 150 kg fed⁻¹ and spraying active dry yeast at rates 0, 2 and 4 g L⁻¹ on growth, seed yield, essential oil and its main components of caraway plants grown under newly reclaimed soils. The obtained results showed that the treated caraway plants with NPK fertilizer or spraying active dry yeast either alone or in combination led to improve plant growth characters expressed as plant height, number of branches, fresh and dry weights of herb plant⁻¹, number of umbels plant⁻¹, diameter of umbel, fresh and dry weights of umbels plant⁻¹ and weight of fruits plant⁻¹, as well as, N, P and K percentages, total chlorophylls, carotenoids, total carbohydrates and essential oil %. GLC analysis of the volatile oil of caraway seed revealed the presence of Carvone, Limonene, Linalool, Pinene, Carveol and Dihydrocarvone. The mean values of Carvone (major compound) in the essential oil showed gradually increase due to increasing NPK dose from 50 to 100 then 150 kg fed⁻¹ the same trend was attained with active dry yeast.