Physiological studies on some vegetable crops under calcareous soils

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This study was conducted on a highly calcareous soil with a pH of 8.4 and 42.38% CaCO3 at Mariut, Alexandria Governorate during 1987-1988 and 1968-1969 winter seasons in order to ameliorate the depressive effects of such soils on growth, yield and quality of pea C.V. Little Marvel and table beet C.V. Detroit Dark Red plants. Seeds of both crops were soaked pre-sowing in solutions of some micro nutrients and growth regulators and then grown plants were sprayed twice with the same substances. Thirteen treatments, i.e. EDTA salts of each of Mn (500 and 1000 ppm), Fe (500 and 1000 ppm) and Zn (2000 and 4000 ppm) beside growth regulators, i.e. GA3 (100 and 200 ppm), ethrel (200 and 400 ppm) and CCC (1000 and 2000 ppm), in addition to the control treatment, which seeds were soaked in and plants were sprayed with distilled water, were practiced in this work. Obtained results can be summarizd as follows: First experiment: Effect of some micro-nutrients and growth regulators on pea plants grown under calcareous soil conditions:1- All studied treatments improved the germinationcapacity of pea seeds compared to the untreated check85treatment. The best results were noticed by CCC at 1000 ppm followed by ethrel at 200 ppm and Fe at 500 ppm.2-Using either 1000 ppm Mn, 1000 or 2000 ppm CCC induced the most enhancing effect on the vegetative growth of pea plants.3-All micro-nutrients and growth regulators treatments significantly increased total nitrogen, phsphorus and potassium as well as Mn, Fe and Zn content of plant tissues, However, such treatments were not able to affect significantly calcium and sodium content.4-Contrary to GA3, all micro-nutrients and growth regulators treatments, especially those of ethrel and CCC enhanced flowering of pea plants through diminishing number of days required till the anthesis of the first flower and lowered its position on the stem compared to the control treatment.5-Total green pods yield and its components, i.e. number of pods per plant and pod weight as well as pod quality, i.e. pod length and diameter, number of seeds per pod, weight of 100 seeds and shell out percentage were mostly significantly improved by all used treatments compared with untreated check treatment. In a descending order, Mn (1000 ppm), CCC (1000 ppm), Fe (500 ppm) and Zn (2000 ppm) were the.