AMELIORAREA UNOR ÎNSUSIRI CHIMICE ALE SUBSTRATURILOR NUTRITIVE PRIN TRATAREA CU POLIELECTROLITI CARBOXILICI
IMPROVEMENT OF THE CHEMICAL NUTRITIONAL SUBSTRATES BY TREATMENT WITH POLYELECTROLYTE CARBOXYLIC

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Growing plants in greenhouses and pots requires special soil material. A well drained soil mix with optimal moisture and air relationships and with high content of organic matter and nutrients must be prepared. The maintenance of the soil reaction in the optimal pH range is another important condition of horticultural substrata. The accumulation of high content of soluble salts restrict the plants growth due to direct ion toxicities, ionic imbalance and decreasing of the water availability. In order to improve the physical and chemical properties of horticultural substrata we set up an experiment in which a copolymer of maleic anhydride with vinyl acetate (MAVA) in form of ammonium salt was used as additive. The water soluble polymers bearing carboxylic groups such as poly(acrylic acid), hydrolyzed polyacrylonitrile or maleic acid copolymers are cited in the literature as soil conditioners. MA-VA copolymer was obtained by radical copolymerization in organic solvent, followed by hydrolysis and neutralization in mild conditions (Chitanu et al., 1993). In our experiment the main organic component of horticultural substrata –fibrous peat and old manure were wetted with MA-VA polymer solution. In the control variants they were wetted only with water. After 48 hours we determined the content of soluble salts by conductometric measurements. The nitrate and ammonium ions were also assessed after extraction with KCl 2N solution. The content of water soluble substances (soluble salts, organic acids, etc.) in the extract obtained from old manure treated with polymer solution decreased with 98-118mg/100g wetted component compared to the control variant. The water soluble substances in the extract obtained from fibrous peat treated with polymer solutions slightly increased with 3-31mg/100g wetted component compared to the control variant. The content of the ammonium ion increased in all variants treated with polymer solution. This behavior was expected taking into account the chemical structure of the copolymer. The content of nitrate ions remained constant in old manure variants and increased in fibrous peat treated with polymer solution.