THE EFFECT OF WATER EXTRACTS OF STEVIA ON THE GROWTH AND NET-PRODUCTIVITY OF VEGETABLE CROPS

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Stevia (*Stevia rebaudiana Bertoni*) is a new promising crop, well-known for the high content of diterpenoid sweet glycosides in the leaves. These glycosides are used in the food industry as low-calorie sugar substitutes. In addition to high sweetness, diterpene glycosides of stevia possess gibberellin-like activity. Extracts from stevia leaves also contain several other organic compounds and have antioxidant properties.

The purpose of this experiment was to study the effect of a complex of compounds contained in water extracts from stevia leaves on the growth and net-productivity of vegetable crops. The experiments have been carried out under controlled conditions (artificial light) on seeds and plants of lettuce and cucumber. It was found that the extracts significantly stimulated the growth of seedlings and the accumulation of plant biomass. The effective concentrations of water extracts stimulating the growth of both crops have been determined. It was revealed, that the optimum concentrations of stevia extracts stimulating the seeds germination are 20–50 times higher than concentrations used for foliar treatment of plants. Seeds treatment with extract from stevia leaves in the best treatment of the experiment increased the length of seedlings roots and hypocotyls of cucumber (by 13 and 36%, respectively) and lettuce (by 90 and 24%, respectively). Three foliar treatment of the plants also increased fresh and dry mass of lettuce (by 32 and 51%, respectively) and cucumber (by 26 and 29%, respectively). Stevia leaves water extracts can be recommended for stimulation of growth, yield increase and improvement of quality of vegetable production through its effectiveness, environmental safety, low cost and simplicity of obtaining in comparison with other preparations, e.g. gibberellins or chemically purified stevioside.

Keywords: stevia, water leaves extract, biological activity, vegetables, controlled condition.