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The Effects of Time of Manure Application and Different Biological Fertilisers on Quantitative and Qualitative Characteristics of *Cucurbita pepo* L.

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Abstract

Understanding of relations and interactions between ecosystem's components and plants is one of the main conditions for sustainable production of medicinal plants. Natural systems agriculture is based on an understanding that natural systems are self-sustaining due to regulatory mechanisms and processes that help to ensure the long-term maintenance of the ecosystem. In recent years, biological fertilisers have received special attention by scientists in sustainable and low input agriculture. Schneider squash is one of the medicinal plants that cultivate around the world due to excellent effects of seeds in its fruits. The Seeds enriched of vitamin E and have been used for healing some diseases such as prostate hypertrophy in men. To study the response of summer squash as a medicinal plant, two manure application time and utilisation of different biofertilisers, split plot arrangement of factors based on randomised complete block design with three replications was used in 2008–09 growing season. Two manure application time (autumn and spring) were allocated to main plots and four biofertilisers including 1- Nitragin (containing *Azotobacter* sp., *Azospirillum* sp. and *Pseudomonas* sp.), 2- phosphate solubilising bacteria PSB (containing *Pseudomonas* sp. and *Bacillus* sp.), 3- Nitragin+PSB, 4-control, were assigned to sub plots. The results showed the significant effect of spring manure application on fruit and seed yield. Nitragin increased fruit and seed yield, significantly. The superiority of spring manure application was revealed on seed and fruit number. A positive correlation ($R^2 = 0.92$) was found between fruit and seed yield with a linear trend in the range of 10 to 20 t ha⁻¹ and leveling off at the above 20 t ha⁻¹ fruit yields. The seed oil and protein content were not affected by treatments, however, the biofertilisers increased oil and protein yield compared to control. At a glance, the biofertilisers could be an appropriate alternative for chemical fertilisers high input conventional systems to achieve ecological production of summer squash.

Keywords: Biofertilisers, Schneider squash, seed oil, seed yield