

## The effect of different levels of vermicompost and photoperiod on greenhouse production of medicinal plant stevia (*Stevia rebaudiana* Bertoni)

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### Abstract

*Stevia (Stevia rebaudiana* Bertoni) leaves are strong natural sweeteners, with no calories, which can be used as a substitute for sugar in food and beverage industries. When the day length is less than 13 hours, stevia goes to flowering stage and the content of sweetening substances decreases. In low temperatures, this plant goes to dormancy phase. It would be possible to produce stevia leaves all year round in the greenhouse by adjusting the photoperiod and temperature. This study was conducted as a factorial experiment, based on completely randomized design with two factors. Treatments were 3 photoperiods (short winter days, interrupting nights for 1.5 hours at midnight, and long days) and 3 levels of vermicompost (0, 10 and 20% v/v) as substrate. According to the results, flowering was observed only in the control plants kept in winter short days. The highest leaf yield was produced in 20% vermicompost treatment with interrupting nights. In the same treatment, the amount of chlorophyll *a*, total chlorophyll and carotenoid content was increased, while chlorophyll *b* content was decreased. Therefore, in this experiment, by increasing the day length or interrupting the nights, stevia plants were kept in the growing phase, and adding vermicompost at 20% level to the growth medium improved plant growth and increased the leaf yield.

**Keywords:** Day length, Leaf yield, Natural sweetener, Biologic fertilizer.

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