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**Growth and yield performances of salad cucumber as affected by artificial light and rate of fertilizer under controlled environmental conditions**

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**Abstract**

An experiment was accomplished at the Faculty of Agriculture, University of Ruhuna from August to October 2022 in two protected houses to study the effect of artificial light and the rate of Albert fertilizer on the growth and yield performances of Salad cucumber (*Cucumis sativus* L. var Efdal F1). The experiment was carried out in a Two Factor Factorial Completely Randomized Design (CRD) with five replicates. The tested two factors were light; L<sub>1</sub> (with artificial light), L<sub>2</sub> (without artificial light), and rate of fertilizer; R<sub>1</sub> (1.5g/plant/day), R<sub>2</sub> (2g/plant/day). These two fertilizer rates were the best-performed treatments of previous research. Thus, the present study was conducted to evaluate the effect of artificial lights on the best-performed fertilizer rates of the previous study. Light was provided from 6.00 a.m. to 6.00 p.m. When lux level is less than 3000, lights were automatically on. Treatments were applied daily. As growth parameters, vine length, leaf area, and number of leaves per plant were measured once a week. As yield parameters, the number of days taken to first flowering, number of fruits per plant, total fruit yield, and length of fruit were measured at harvesting. Data were analyzed using ANOVA and means were separated by Duncan's Multiple Range Test (DMRT) at a 5% probability level. According to the results, there was an interaction effect between artificial light and the rate of Albert fertilizer on the number of leaves. The significantly highest number of leaves was recorded in 1.5g Albert fertilizer solution/plant/day with artificial lights. There was no interaction effect on vine length, leaf area, fruit length, and total yield. However, 1.5g Albert fertilizer solution/plant/day reported significantly higher vine length and leaf area. Also providing artificial lights recorded significantly higher fruit length and total yield. The number of days taken for first flowering and the number of fruits per plant were not significantly affected by either the main factor or any interactions between factors. Among all the treatments, 1.5g/plant/day Albert fertilizer solution (R<sub>1</sub>) under the artificial lights (L<sub>1</sub>) is the best treatment for receiving higher growth and yield performances of Salad cucumber.

**Keywords:** Artificial light, Fertilizer rate, Protected house, Salad cucumber

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