

# **GROWTH PERFORMANCE AND YIELD ANALYSIS OF SALAD CUCUMBER VARIETIES UNDER POLYTUNNEL CONDITION**



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## ABSTRACT

Cucumber is a major vegetable in the Cucurbitaceae family. The performance of different salad cucumber varieties varies significantly. This study was aimed to evaluate the varietal performances of four new exotic salad cucumber varieties namely, Han Mini 02, TCU 172, TCU 136, Han Mini 03 compared to the control variety Basima F1 under the polytunnel conditions. This research was conducted at the Regional Agricultural Research and Development Center (RARDC), Kahagolla, Bandarawela, located in the Upcountry Intermediate Zone during November 2024 to February 2025. 30 plants in each variety were arranged in three replicates with 10 plants per replicate as a pot experiment in soilless media. A total of 150 plants were used in the experiment. Significant differences ( $p < 0.05$ ) were observed among the varieties in growth parameters, including days to first flowering, days to 50% flowering, vine height at 50% flowering, vine height at first harvest, and days to first harvest. The earliest flowering was observed in TCU 172 and TCU 136 at 33.66 and 33.76 days, respectively. These varieties recorded the shortest time to reach 50% flowering, while Basima F1 exhibited slower reproductive development, taking 36.00 days. Vine height at 50% flowering varied significantly, with Basima F1 being the tallest (70.96 cm) and Han Mini 03 the shortest (58.53 cm). Yield parameters showed that TCU 172 had the highest yield (4.36 kg). This was followed by TCU 136 (4.24 kg), and Basima F1 (4.08 kg). Han Mini 02 yielded 3.8058 kg per vine, while the lowest yield was recorded in Han Mini 03 with 2.9515 kg per vine. The number of fruits per plant was highest for TCU 136 (31.86) and lowest for Han Mini 03 (23.06). Fruit quality parameters such as length, width, flesh thickness, and weight varied greatly, with TCU 172 producing the heaviest fruits (169.46 g) and Han Mini 03 the lightest (108.86 g). The results indicated that TCU 172 and TCU 136 had better growth and yield performance, making them suitable exotic varieties for polytunnel cultivation. These varieties have been confirmed to be suitable for cultivation in polytunnels in Upcountry Intermediate Zone and suitable for commercial production in Sri Lanka to increase the yield and market demand of salad cucumber.

Keywords: Polytunnel cultivation, quality, salad cucumber, soilless media, yield

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