

POTASSIUM NUTRITION OF LILY (*LILIUM SP.*) CV. ARCACHON IN PERLITE CULTURES

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Production of cut flowers in hydroponics is an alternative to increase yield, quality, and water and nutrient use efficiency. Research efforts have been focused on vegetable production in hydroponics in developing countries and consequently, little research on ornamental species has been conducted and few growers use this technology. *Lilium* is widely cultivated and is the favorite species for Mexican growers and consumers. Nonetheless, no information is available in regards to cultivation of lily in hydroponics in México. In this study we evaluated the growth of lily cv. Arcachon at various levels of K⁺ because it is accumulated at high concentrations in plant tissues and is considered the most abundant cation in cell cytoplasm. The study was conducted from September to November, 2009 in a plastic house in Saltillo, Coah., México. Plants were grown in plastic crates with perlite using bulbs of 35–40 cm in circumference. Nutrient solutions contained K⁺ at concentrations 0, 2.5, 5, 7.5, 12.5, 17.5, 22.5, and 30 mM. Irrigation was provided using a drip irrigation system dispensing 6L of solution per crate per hour and was conducted for 5 min at hourly intervals from 9 AM to 6 PM. Drained solution was captured and recirculated for re-use the following irrigation. A completely randomized block design with four replications was used and data were analyzed using piecewise analysis. Models estimate that optimum K⁺ concentration was 3.41 mM for plant height, 4.69 mM for total dry weight, 3.14 mM for leaf area, and 6.27 mM for flower diameter and luxury consumption zone was between 3.41–22.5 mM, 4.69–22.5 mM, 3.14–22.5 mM, and 6.27–17.5 mM, respectively. Toxicity was observed when K⁺ concentration was higher than 22.5 mM for most of the parameters evaluated. Potassium concentration increased linearly in all plant parts as external concentration increased.