DETECTABLE POTASSIUM REDUCTION IN VARIOUS WASTEWATER TREATMENT SYSTEMS

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ABSTRACT

Partially or semi-treated wastewater could be an alternative for continuous water and nutrient source for hydroculture-based plant production. To achieve proper yields, determining the macronutrient contents of the wastewater, such as Nitrogen (N), Phosphorus (P), and Potassium (K), is required. As regular N and P measurements are regular on a daily basis, in this study multiple sources for Potassium (K) content were tested only, determining the exact concentration, the daily concentration pattern, and separately monitored influent and effluent Potassium (K) levels.

Potassium (K) content was quantified by flame photometry. Results of this study demonstrates that vegetation coverage does not significantly change Potassium (K) consumption in Water Reclamation outside the vegetation period. The concentration of potassium (K) is decreasing during the wastewater treatment process and the number of biological steps is correlating with the consumption increase. The potassium (K) is presumably consumed by the organisms responsible for the treatment and is discharged with the excess sludge, as it cannot leave in either gaseous or dissolved form.

Adequate measurement of potassium (K) consumption in various biological processes and technological configurations is essential to understand the background of these occurrences.

Keywords: Potassium (K) content, wastewater treatments, hydroculture

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