

Macronutrient Concentration in Stem, Leaf and Petiole of Wild Grown Water Spinach (*Ipomea Aquatic* Forsk.) and Its Relationship With Pond Water

ABSTRACT

Water spinach (*Ipomea aquatic* Forsk.) is a food for human beings and animals. It is rich in minerals, protein, dietary fibre, with high moisture content. The work was undertaken to determine contents of K, Ca, Mg, Na & P in the stems, leaves and petioles of water spinach. Atomic absorption spectrometry (AAS) and Inductive Couple Plasma (ICP) were used to determine concentration of nutrients, where one way ANOVA was applied to analyse if there is any significant differences in the macronutrient contents amongst the leaves, petioles and stems of the water spinach. If any of the results showed significant differences, Turkey post-hoc HSD test ($p < 0.05\%$) was adopted to separate the means. In addition, Pearson's Correlation Coefficient Test was conducted between the plant macronutrients samples (leaves + stem + petioles combined) and water macronutrients data run to determine their relationships. In addition, purpose of this study is to highlight to the public which parts of the plant should be consumed and also to indicate the relationship of Water Spinach with its growing medium. The K concentration was higher than the other elements and maximum concentration was in petioles ($432 \pm 27.45 \text{ mg}\cdot\text{L}^{-1}$) and stems ($424.60 \pm 14.19 \text{ mg}\cdot\text{L}^{-1}$). The element with the least concentration was Na ($3.10 \pm 0.40 \text{ mg}\cdot\text{L}^{-1}$), in the petiole. There was no difference in Mg content in leaves, petioles and stems (avg. $28.55 \pm 1.61 \text{ mg}\cdot\text{L}^{-1}$). High amounts of Ca ($150 \pm 0.10 \text{ mg}\cdot\text{L}^{-1}$) and low amounts of P ($41.11 \pm 0.01 \text{ mg}\cdot\text{L}^{-1}$) were in pond water. A positive correlation of each nutrient occurred between water spinach and pond water.