

**POTASSIUM AND PHOSPHORUS CONCENTRATIONS OF RICE GRAINS COLLECTED FROM DIFFERENT AGRO-CLIMATIC ZONES OF SRI LANKA**

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Rice (*Oryza sativa* L.) grains serve as a key source of essential mineral elements such as phosphorus (P) and potassium (K) in the Sri Lankan diet. The effect of agro-climatic conditions and agronomic management factors on the P and K concentration in rice grains in Sri Lanka is unknown. This study investigated the P and K concentrations in rice grains by collecting 100 rice grain samples countrywide using stratified random sampling approach. The P and K concentrations were assessed using protocols coupled with spectrophotometry, and flame photometry, respectively. Grain K and P concentrations collected from different agro-climatic zones (ACZs), water sources used for rice cultivation, fields used to grow other crops in the previous season were compared using analysis of variance. Grain P concentrations ranged from 0.55 to 1.75 mg g<sup>-1</sup> DW, while grain K concentrations were in the range of 1.68 and 4.53 mg g<sup>-1</sup> DW. The concentrations of the two minerals were not significantly ( $p > 0.05$ ) affected by different irrigation water sources, i.e., major irrigation, minor irrigation, and rainfed. Grain K concentration was similar among ACZs ( $p > 0.05$ ). However, grain P concentration in Wet zone Low country was significantly lower than those observed in other ACZs ( $p < 0.05$ ). Rice fields used to cultivate paddy, other field crops (e.g., mung bean, cowpea, maize) or fallow in the previous season showed significantly lower grain K concentration than those from the fields used to grow banana ( $p < 0.05$ ). However, grain P concentration was not affected by the crops grown in the previous season ( $p > 0.05$ ). Overall, there was high variability in P and K concentrations of the rice grain samples collected from different regions in Sri Lanka. The ACZ and crops grown in rotation are important determinants of grain P and K concentrations in rice and thus need to be considered in the fertility management in rice-based cropping systems in Sri Lanka.

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