

Effect of salinity on proximate mineral composition of purslane (*Portulaca oleracea* L.)

ABSTRACT

Purslane (*Portulaca oleracea*) is a drought and salt tolerant annual plant which contains high amounts of beneficial antioxidant vitamins and minerals. The objective of this study was to determine the influence of salt stress on the growth and mineral composition of purslane (*Portulaca oleracea* L.). Four salinity levels namely 0 (control), 66, 132 and 264 mM NaCl were tested. Full grown leaf and stems of purslane samples were harvested at 10 and 20 days of the saline treatment exposure. Growth of purslane plants was more suppressed under 264 mM compared to 132 mM. Salinity levels and planting harvest time significantly influenced the levels of protein, water content and ash. The protein content of purslane leaves decreased with increasing salinity and time of exposure treatment. However, carbohydrates and mineral residue content increased. The highest mineral residue content was found in leaves exposed to the maximum salinity levels. The mineral composition was also affected by salinity levels, Na^+ , Mg^{++} and Cluptake and accumulation increased with the increment of salinity. The Ca^{++} , K^+ and Zn^+ ion levels decreased with increasing salinity. Accumulation of Ca^{++} and Zn^+ in leaves was higher while K^+ and Na^+ were higher in the stems. The relative ratio of Na^+ / K^+ , $\text{Na}^+ / \text{Ca}^{++}$, $\text{Na}^+ / \text{Mg}^{++}$, $\text{Mg}^{++} / \text{Ca}^{++}$ and $\text{Mg}^{++} / \text{K}^+$ increased with increasing salinity treatment. The findings of this study revealed that purslane can tolerate moderate salinity levels (66 and 132 mM). Therefore, purslane can be a potential to become a key vegetable crop, especially for functional food and nutraceutical applications.