

The accumulation of fatty acids in different organs of purslane under salt stress

ABSTRACT

Purslane (*Portulaca oleracea*) is an important salt-tolerance plant in the world. Salt stress influenced fatty acid contents and composition. In this study, two purslane genotypes, one cultivated variety (Pakistan Local, 'PL') and another wild variety (Liaoning China local 'LCL') were chosen. The effects of 100mM and 200mM of NaCl stress on morphological and physiological indexes along with fatty acid contents in leaves, stems and roots of two genotypes were analyzed. The results showed that NaCl stress affected the above-ground and underground growth, chlorophyll content, photochemical efficiency and osmotic potential of purslane, especially 200mM of NaCl stress and for salt-sensitive 'LCL'. 12 types of fatty acids were identified with gas chromatography-mass spectrometry. Alpha-Linolenic acid (18:3, ω -3 fatty acid) and linoleic acid (18:2, ω -6 fatty acid) were important fatty acids in three different organs. NaCl stress significantly increased ω -3 contents at 200mM of NaCl stress in the leaves of 'PL' and in the stems of 'LCL'. Compared with stems and roots, the ratio of ω -6/ ω -3 was very low in leaves for two genotypes, especially in 'PL'. According to our results, purslane should be generalized as a prospective functional vegetable and fodder in saline areas.