

The Influence of Nitrogen Fertilization on Growth, Yield, Nitrate and Oxalic Acid Concentration in Purslane (*Portulaca oleracea* L.)

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Abstract

Culinary use of purslane (*Portulaca oleracea* L.) is appreciated across the whole of the Mediterranean, and the interest in this plant has been increasing due to be a source of bio-protectives compounds, such as fatty acids and antioxidants. However, their use may be difficult due to the accumulation of high contents of compounds harmful to human health, such as nitrate and oxalic acid. The main objective of the present study was to evaluate the influence of nitrogen fertilization on growth and yield parameters, and on nitrate and oxalic acid concentration in leaves and stems. Plants of golden-leafed purslane of *sativa* subspecies were grown in styrofoam boxes with substrate and fertigated 2 times per week along 4 weeks with ammonium-nitrate solution (16.9% NO₃⁻-N and 17.6% NH₄⁺-N), for testing 4 nitrogen levels (0, 30, 60 and 90 kg N ha⁻¹). Plant growth, yield, nitrate and oxalic acid concentrations were significantly affected by nitrogen application. The best quantity/quality ratio was achieved in fertilization level of 60 kg N ha⁻¹, in which the yield was 5.1 kg m⁻² FW and nitrate concentration was 48.98 and 43.90 mg g⁻¹ DW in leaf and stem, respectively, and oxalic acid concentration was 1.27 and 0.55 mg g⁻¹ DW, in leaf and stem, respectively, values not harmful to consumer health.