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Analysis of levels of free fatty acids and alpha linolenic acid in Portulaca oleracea

This study evaluates purslane (Portulaca oleracea) as a plant-based source of omega-3s by quantifying free fatty acids (FFAs) and probing alpha-linolenic acid (ALA) signatures using standardized wet-chemistry and chromatographic methods . Seeds and aerial parts were processed via Soxhlet extraction with petroleum ether under controlled temperature, followed by acid value titration using a neutral solvent and phenolphthalein to estimate FFAs, a quality marker for lipid stability and processing suitability . Unsaturation was assessed by Hanus iodine value, reflecting double-bond density typical of PUFA-rich matrices like purslane oils . Seed extracts were profiled on HPLC-UV with methanol:water to observe reproducible PUFA-associated peaks supporting ALA-rich composition reported for P. oleracea seeds and tissues . Together, these measurements benchmark FFA status and unsaturation toward validating purslane as a sustainable ALA source for nutraceutical and functional food applications.

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