

# Anatomical features, fatty acid profile and tocopherol content of the Tunisian *Cakile maritima* subsp. *maritima* Scop. Fruit

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## 1 ABSTRACT

This study reported for the first time anatomical features, fatty acid composition and tocopherol content for the fruits of *Cakile maritima* subsp. *maritima* Scop. collected from two sites located at the coastal part of North Tunisia (Bizerte and Soliman). Anatomical investigations characterized the indehiscent siliqua of Soliman population. Transverse sections through fresh fruit show a large number of prismatic crystals located at the three first layers of the mesocarp, which parenchyma was characterized by the presence of large amounts of starch grains and solitary oil drops. A particular anatomical structure is identified at the valves junction. The endocarp is a thin tissue composed of 2-3 layers of small lignified wall cells and one layer of tangentially elongated and thin cells surrounding the seed. Moreover, the fruit oil from both populations are characterized by their richness in unsaturated fatty acids, particularly monounsaturated ones. The major identified fatty acids with GC/MS analysis of fatty acid methyl esters for Bizerte and Soliman populations are oleic ( $20.20 \pm 1.42$  and  $23.9 \pm 2.87\%$ , respectively), erucic ( $20.82 \pm 1.60$  and  $22.04 \pm 2.65\%$ , respectively) and linoleic ( $24.09 \pm 2.47$  and  $21.34 \pm 2.76\%$ , respectively) acids. Besides, analysis of tocopherols allowed the identification of two isoforms ( $\alpha$ - and  $\gamma$ -tocopherols). The  $\alpha$ -tocopherol was found as the prominent one in the two fruit oils and was most important in Soliman population than in Bizerte one ( $31.13 \pm 2.45$  mg/kg against  $28.88 \pm 2.21$  mg/kg).

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