



# The drying process of *Sarcocornia perennis*: impact on nutritional and physico-chemical properties

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**Abstract** The *Sarcocornia* genus is an extreme salt-tolerant plant that can be cultivated in saline habitats almost worldwide. To preserve *Sarcocornia perennis*, convective drying experiments were conducted and their effects on the physico-chemical properties and phenolic content of the plant were studied using conventional and vibrational spectroscopy techniques. The drying process of *Sarcocornia perennis* at temperatures of 40 °C, 50 °C, 60 °C and 70 °C revealed three periods of convective drying process with drying times ranging between 4.5 and 24.9 h, respectively to higher and lower temperatures. The heating-up period can be neglected as compared with the drying process, and the duration of constant rate period, as a percentage of the total drying time, ranged between 34 and 20% respectively at 40 °C and 70 °C. The Modified Page model was proposed to describe the drying process at the different temperatures. From a nutritional point of view, this halophyte plant may be considered as a good source of

fibres, phenolic compounds and natural minerals, such as sodium, potassium, calcium and magnesium. The convective drying, in the temperature range currently used, was found to preserve the colour, nutritional characteristics and phytochemical value of *Sarcocornia perennis*. These results were confirmed by FTIR-ATR and highlight the potential use of the dried plant in novel food products.

**Keywords** Halophyte plants · *Sarcocornia perennis* · Drying process · Kinetic · Physico-chemical properties · FTIR-ATR

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