

Characteristics of *Chamaerops humilis* L. var. *humilis* seed oil and study of the oxidative stability by blending with soybean oil

ABSTRACT

Herein we examine the characteristics of date seed oil extracted from *Chamaerops humilis* L. var. *humilis* seeds (HSO) cultivated in a gardening zone in Tunisia. Its physicochemical properties, fatty acid composition, and thermal and antioxidant properties were evaluated and compared with those of seed oil from another variety of *Chamaerops humilis*. The results showed that HSO possessed higher contents of oleic (44%) and linoleic (20%) acids than the other seed oil. The total tocopherol and tocotrienol content was 88 mg/100 g oil, where α -tocotrienol (64%) was the major isomer. The total phenolic (91 μ g/g oil) and flavonoid contents (18 μ g/g oil) of the HSO were determined, and its antioxidant capacities, measured in terms of ABTS and DPPH radical-scavenging capacities, were 210 μ M TEAC/g DW and 4.3 mM TEAC/g DW, respectively. The oxidative stability index (OSI) of the oil was 16 h at 110 °C. Furthermore, the OSI of soybean oil was significantly enhanced upon blending with HSO. HSO exhibited higher thermal stability than the other oils and significantly different thermal behavior. The determination of fatty acid composition, physicochemical properties, bioactive content, oxidative stability, and thermal behavior of HSO demonstrated that this renewable resource can be used for edible purposes.

Keyword: Antioxidant properties; Blending; *Chamaerops humilis* L. var. *humilis* seed oil; Fatty acids; Oxidative stability