Ultrasound assisted extraction of rosehips *Rosa canina* L.

Abstract

In the present study, Rosa canina L. (Rosaceae) extracts were prepared using 0.75-2 mm particle size of rosehips, 70% ethanol, 1:100 g/mL solid-to-solvent ratio, and ultrasound probe (40% amplitude during 10 min and 50% amplitude during 15 min of ultrasound-assisted extraction). The extracts were characterized via analyzing total polyphenol content (TPC), antioxidant potential (ABTS assay), zeta potential, conductivity, pH, density, surface tension, and viscosity. TPC were 3.86±0.12 and 3.07±0.02 mg gallic acid equivalents (GAE)/g of plant material (40%, 10 min, and 50%, 15 min, respectively). ABTS radical scavenging activity was 1.76±0.01 and 1.43±0.01 mmol Trolox/g of plant material (40%, 10 min and 50%, 15 min, respectively). Zeta potential was -3.92±0.01 and -4.15±0.14 mV, conductivity was 0.073±0.001 and 0.064±0.001 mS/cm, while pH value was similar, 5.11 and 5.14 (40%, 10 min and 50%, 15 min, respectively). Density was 0.895±0.000 and 0.897±0.001 g/mL, the surface tension was 26.1±0.2 and 26.4±0.2 mN/m, whereas viscosity was 2.75±0.01 and 2.63±0.01 mPa·s (40%, 10 min and 50%, 15 min, respectively). Since the physical characteristics were similar in both extracts, while higher TPC and antioxidant potential were determined in the extract obtained at 40% of amplitude during 10 min of ultrasound-assisted extraction, this extract can be selected for further encapsulation and implementation into different food, pharmaceutical, and cosmetic products.