

**Evaluation of chitosan modified by acidic deep eutectic solvents in the extraction of rutin from sea buckthorn (*Hippophae Rhamnoides L.*) leaves**

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Eight acidic deep eutectic solvents composed of choline chloride and different acids were used to synthesize chitosan derivatives. All acidic deep eutectic solvents resulted in high transmittance and stable chitosan derivatives under the appropriate reaction conditions. These derivatives were used further as adsorbents in the ultrasound-assisted extraction and detection of rutin from sea buckthorn (*Hippophae Rhamnoides L.*) leaves using reversed-phase high-performance liquid chromatography. The extraction obtained a final mass content of  $107.5 \pm 0.16 \text{ mg g}^{-1}$  dry powder. The results showed that sea buckthorn (*Hippophae Rhamnoides L.*) leaves, a food industry by-product and agricultural waste, can be used as an inexpensive and new source of rutin. The acidic deep eutectic solvents were found to be non-toxic and environmentally benign and could produce functionalized chitosan.