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Phytochemical characterization and antimicrobial evaluation of young leaf/shoot and
press cake extracts from *Hippophae rhamnoides* L.

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Abstract

The chemical components, as well as antioxidant and antimicrobial activities of extracts derived from the young leaves/shoots and press cake of sea buckthorn (SBT) (*Hippophae rhamnoides* L.) were studied. The chemical analysis of the ethanolic extracts by liquid chromatography-mass spectrometry (LC-DAD-ESI-MS/MS) led to the identification and quantification of 20 individual hydrophilic compounds including phenolic acids, flavonols, flavan-3-ols, and proanthocyanidins. The results of this study imply that DPPH• radical scavenging of each polyphenol acts independently. The relative speed of the reaction depends predominantly on each compound's chemical structure rather than its concentration. The extracts from SBT leaves/shoots and press cake, dissolved in water after the removal of ethanol, showed a significant antimicrobial activity against Gram-positive aerobic or facultative anaerobic and Gram-negative pathogenic bacteria, which included *Bacillus* spp. and the *Enterobacteriaceae* family (*Salmonella* spp., *Escherichia coli*,

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