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Chemical composition of sea buckthorn fruit

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Sea buckthorn (*Hippophae rhamnoides* L.) is a thorny shrub or a small tree belonging to the family Elaeagnaceae with lanceolate leaves and orange fruit. Its fruit and other organs have been used in traditional medicine, especially in China, Tibet and Mongolia. Preparations made from this plant are also applied in conventional medicine and the cosmetic industry. The sea buckthorn fruit is broadly known for its diverse biological activities, attributed to the presence of different secondary metabolites, including phenolic compounds. The flavonoid composition of the sea buckthorn fruit has been well characterized. Despite this fact, some literature data and our preliminary results indicated that the available descriptions of its flavonoid profile lacked some important details. The aim of our study was to investigate the composition of butanol extract from sea buckthorn fruit. The extract was subjected to UHPLC-MS analyses, performed in negative and positive ionization mode, using an ACQUITY UPLC® chromatographic system (waters) coupled with a triple quadrupole mass spectrometer. The experiments revealed the presence of a number of isorhamnetin glycosides, showing characteristic neutral losses of 230 or 246 Da in their fragmentation patterns. These observations suggested the loss of deoxyhexose and hexose, respectively, bound to 84 Da acyl group, most probably the untypical short-chained aliphatic acid. This hypothesis confirmed after subsequent purification and NMR analyses of these compounds and the acyl group was identified as isovaleric acid. Sea buckthorn is, according to our knowledge, the only plant known to contain flavonoids acylated with this acid.

Biography

Anna Stochmal has completed her PhD in 1997 and became Professor of Agricultural Sciences in 2012. She has 30 years of experience in the isolation and structure elucidation of plant secondary metabolites. She is the Head of Department of Biochemistry at the Institute of Soil Science and Plant Cultivation. She has published nearly 160 papers.

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