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Resveratrol and tryptophan in cherry, sweet cherry, sea buckthorn fruits and japanese knotweed leaves

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Abstract

Research on the relationship between diet and human health has provided information on the prophylactic and auxiliary treatment of many diseases with the use of nutrients and non-food components of plant-origin products. However, the content of compounds with health-promoting effects in plants varies and depends on many factors, including a genotype, geographical area, agrotechnical practices, climatic and soil conditions. The subject of the study were fruits of cherry cv. Łutówka, cherry cv. Vanda, sea buckthorn cv. Sirola, and Japanese knotweed leaves as a potential source of resveratrol and tryptophan in human diet. The plants were grown at the Agricultural Experimental Station in Lipnik (53°20'35"N 14°58'10"E, altitude 7 m.a.s.l.), in northern Poland. The soil on which the experiment was conducted belongs to the typical rusty soil group, and is classified as a Haplic Cambisol. In the Ap level (arable-humus horizon), it has the grain size distribution of clay with slightly acidic pH. An analysis of the content soil minerals showed moderate levels of magnesium and potassium, and high levels of phosphorus. No fertilization or supplementary irrigation was used. The fruits were collected from representative trees (avoiding the edge trees). The leaves were collected from four plants, from four shoots of each sampled plant. An analysis of the tryptophan content in the study material was performed according to the methodology described by AOAC (2012). A UHPLC Thermo Ultimate 3000 RS system was used for an analysis of resveratrol in the plant material. In this study, no free resveratrol in the fruit of sea buckthorn and in the leaves of Japanese knotweed was detected. It was also undetected in the fruit of cherries and sweet cherries. However, Japanese knotweed leaves contained derivatives of resveratrol, piceids. Fruits of cherry and, above all, fruits of sweet cherry and sea buckthorn were characterized by a high content of tryptophan.

Keywords: fruits, glycosides, resveratrol, leaves, tryptophan

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