

ABSTRACT

Elderberry is a traditional herb which has always been used in folk medicine. The berries contain many biologically active compounds, from which antocyanins are the most important. The fruits also contain flavonoids, organic acids, sugars, cyanogenic glycosides and another compounds such as vitamins, tannins, amino acids, potassium, calcium and phosphorus. The berries are used in food industry for production of marmelade, fruit syrups, wine and another delicacies. The drug *Sambuci fructus* is currently a subject of interest in pharmacy and medicine. The research examines the beneficial effects of antocyanins on human health and the possible use of antocyanins in medicine and pharmacy. Antocyanins exhibit a strong antioxidant activity, which can potentially be used for treating cardiovascular, tumor or metabolic disorders. The possibility of using the antioxidant effects in treatment for example hyperlipidemia, obesity and metabolic disorder is investigated. The listed effects can be also important as protection against oxidative damage of cells in diabetes mellitus. The antiinflammatory and antiinfective action is also important, it was investigated for both viral and antibacterial infections. At the same time it was shown, that elderberry could act as an effective immunostimulant. The ability of antocyanins to inhibit an inflammation and hyperreactivity of airways can potentially be used as a supplementary treatment of asthma. The elderberry fruits are also used as laxatives in the treatment of chronic constipation.

Elderberry is a wild herb occurring at various habitats. The site of occurrence has an influence on the composition of fruits. The amount of contained compounds can be significantly different in wild plant. Currently the most cultivars of elderberry have been artificially cultivated. The cultivars differ in the amount of contained compounds in berries and therefore in the biological effects.

The content of antocyanins was determined by spectrophotometry in ten selected cultivars, the content was expressed in percentage as a cyanidin 3-*O*-glucoside-chloride and it was converted to the dried drug. It was found out, that the content of antocyanins is different in each cultivar. The content (calculated for the dried berries) ranged from 2,1 % to 5,1 %. The cultivar Samyl was the richest from all of the compared cultivars, the lowest content was measured in cultivar Allesö.

Taking into account that the fruits originated from the plants cultivated at the same locality, the differences among the cultivars are not caused by environmental factors. The cultivars Samyl, Samdal and Weihenstephan seem to be the most advantageous for use in pharmacy in term of antocyanins amount.