METHODS FOR DETERMINATION OF HYDROXYCINNAMIC ACIDS IN VARIOUS KINDS OF MEDICINAL PLANTS

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This article is relevant because hydroxycinnamic acids are essential for pharmacy, because the determination of these compounds is very important for drug development.

The aim of this articleis to determine the qualitative and quantitative content of hydroxycinnamic acids by various methods such types of medicinal plants as Blueberry fruits, Cotton thistle and set their importance.

Hydroxycinnamic acids or hydroxycinnamates are phenolic compounds belonging to non-flavonoid polyphenols.They are present in all parts of fruits and vegetables although the highest concentrations are found in the outer part of ripe fruits, concentrations that decrease during ripening, while the total amount increases as the size of the fruits increases.Their dietary intake has been associated with the prevention of the development of chronic diseases such as:cardiovascular disease, cancer, type-2 diabetes.Data found in the literature shows that hydroxycinnamic acids antioxidant efficacy is strongly dependent on their structural features and intrinsically related to the presence of hydroxyl function(s) in the aromatic structure[1,2].

To determine the amount of hydroxycinnamic acids in medicinal plant raw materials, the following methods are used: chromatography on paper, liquid chromatography, ultraviolet spectrophotometry, mass spectrometry.

Many scientists determine the content of hydroxycinnamic acids in medicinal herbs, such Khomenko M.A researched of hydroxycinnamic acids in the dry alcoholic extract from Blueberry fruits. Blueberry fruits – (Fructus Myrtilli) are widely used in the medical and pharmaceutical practice.Decoctions of blueberry fruits are used as an astringent in therapy of colitis, enterocolitis and diarrhea.For determining the qualitative composition of the hydroxycinnamic acids in the extract dimensional method using paper chromatography. Results were as follows: «Coffee,

chlorogenic, p-coumaric acids have been identified. Five substances which are derivatives of p-coumaric acid could not be identified. It has also been established in the quantitative content of extract. Also, quantification of hydroxycinnamic acid derivatives was carried out by spectrophotometry. It was established that content of hydroxycinnamic compounds was 24.9% in the dry extract of the leaves of blueberry» [3].

Another scientist such as Oproshanska T. V determined quantitative content of hydroxycinamic acids in raw mateials of Cotton thistle. The Cotton thistle generation numbers forty species but there is only one species in Ukraine. This is Cotton thistle, which is widespread all over the country as a weed. In folk medicine, the raw materials of Cotton thistleare used as anti-inflammatory, diureticand antimicrobial drug.The quantitative content of hydroxycinnamic acids was studied by spectrophotometric method. The result of the research showed that the herb, which was prepared in vegetation phase (formation stem), contained small quantity of hydroxycinnamic acids. In the herb and fruit of Cotton thistle are also present sources caffeic and chlorogenic acids. However, the herb, which was prepared in phase of mass flowering, containedat least 4% of hydroxycinnamic acids. The quantitative content of hydroxycinnamic acids in fruit of Cotton thistle was at least 2.5%[4].

Thus, we can make the conclusions that investigational medicinal herbs contain hydroxycinnamic acid such as caffeic, chlorogenic, p-coumaric acids.

Hydroxycinnamic acids possess potent antioxidant and anti-inflammatory properties. These compounds were also showed potential therapeutic benefit in experimental diabetes and hyperlipidemia[5].

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