RESEARCH OF TECHNOLOGICAL PROPERTIES AND EXTRACTION OF THE BIRCH LEAVES

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Birch is a broadleaved deciduous hardwood tree of the genus Betula in the family Betulaceae. They are typically rather short-lived pioneer species widespread in the Northern Hemisphere, particularly in northern temperate and boreal climates.

Nowadays birch leaves preparations are used in cases of avitaminosis, edema, urinary bladder inflammation, atherosclerosis, kidney disorders and as cholagogic and expectorant. Leaves decoction is tonic and restorative and is useful for wet eczemas and climacteric neurosis. Birch leaves are used for flushing kidney and bladder stones, and for urinary infections. Preparations made of them are good for bronchitis, gastritis, stomach ulcers, edema and gout. Birch leaves are also valuable for various skin problems and help in coping with pathogenic microbes, fungi and inflammations. Finally they are known also to stimulate hair growth.

The dried leaves of the birch tree are typically used to make supplements taken by mouth. The leaves are often used to make teas and tinctures. The usual dose is 0.6 g to 9 g of dried leaves, in divided doses, per day.

The aim of this work is to investigate technological properties of the birch leaves and factors of the extraction process.

Birch leaves were crushed and sieved to obtain a fraction with a size of 1-3 mm. It is known that this is the optimal particle size for extraction. Then the relative density - 1,28 g/ml, the bulk density - 0,16 g/ml, the porosity raw - 0,40, the free volume of the plant layer - 0,83, the absorption coefficient - 2,3 ml/g, the humidity - 7,15%, the flowability – poor value, the content of extractives - 24,23% were studied for this fraction.

The next step was to justify the choice of extractant for subsequent extraction. Based on the physico-chemical properties of the active ingredients of birch leaves we have chosen the 50% ethyl alcohol as an extractant.

As an extraction method, we chose percolation. This method has advantages over the method of maceration, extraction with reducing the time for pharmaceutical companies have percolators for this process.

According to the results of determining the content of extractives in the samples determined that the optimal conditions for the extraction in the laboratory is the infusion time – 24 hours, percolation time - 3 hours, the ratio of raw material - the extractant – 1:12.