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A COMPARATIVE STUDY OF RAW MATERIAL OF VISCUM ALBUM FROM POPULUS ALBA AND MALUS DOMESTICA

According to statistics, over the last 100 years, the oncopathological morbidity and mortality rate in the world has moved from the tenth place on the second, give way only to cardiovascular system diseases. According to the WHO (World Health Organization), 10 million new patients are registered each year. It is estimated that cancer deaths by 2030 will increase by 45%, compared with the level in 2018 [1].

Significant biological activity of compounds obtained from natural sources provoked rapid pace of development of preclinical studies in this area.

Viscum album L - is a plant that parasitizes on trees and has various pharmacological effects, such as anti-inflammatory, immunomodulatory, hemostatic, laxative, diuretic, anti-sclerotic. Such a wide range of properties is due to the varieties of BAS(Biologically Active Substances) raw materials. Among the substances found in the leaves of Viscum album L are the following: viscotoxin, lignans, tannins, resinous substances, essential oils, vitamin C, carotene, and others. he main components are Viscotoxin and lignans.

To determine 1, 2, 3 and 4 lignans, the plant material was prepared as follows:

1. Leaves were fragmented into segments, smaller than 5 cm long. Mixed with a 45% solution of ethanol in a ratio of 1: 5.Maceration time: about 3 weeks.
2. To a 20.0 ml of volumetric flask, 8.000 g of mother tincture was added and afterwards the solution was diluted to 20.0 ml with a mixture of 10 volumes of acetonitrile R1 and 90 volumes of trifluoroacetic acid (0.05 per cent V/V) R.

Research of raw materials was carried out by the method of high-performance liquid chromatography (2.2.29) according to the Monograph of the French Pharmacopoeia (ANSM, 2010) [2] on the device Shimadzu LC-20 with UV detector under such conditions:

Column: Phenomenex Luna

— size : l = 0.25 m, Ø = 4.6 mm,

— stationary phase : octadecylsilyl silica gel for chromatography R (5 mm),

— temperature : 30°C.

Mobile phase :

— mobile phase A : trifluoroacetic acid (0.05 per cent V/V) R,

— mobile phase B : acetonitrile R1.

Time (min)	***Mobile phase A (per cent V/V)***	***Mobile phase B (per cent V/V)***
0-20	***90***	***10***
20-25	***90→85***	***10→15***
25-45	***85***	***15***
45-50	***85→0***	***15→100***
50-55	***0***	***100***

Flow rate: 1.0 ml/min.

Detection: spectrophotometer at 220 nm.

Injection: 20 µl.

Identification of the test substances was carried out in accordance with retention time of holding the components.

After analyzing the results obtained under the given test conditions, 4 lignans were identified and a comparison of their quantitative content from different types of plant material was performed. As the chromatogram of the test solution Populous alba (test solution 1), and Malus domestica (test solution 2) were identified all four lignans with such retention times: lignan 1-11.75 min, lignan 2 - 13.86 min, lignan 3 - 30.60 min, lignan 4 - 33.39 min.

Thus, the concentration of lignans on the chromatogram of the test solution 2 exceeds the results of the test solution 1. Comparison of concentrations of lignan

can be expressed in the following ratio of the first test solution to the second: the first lignan - 1: 5, the second lignan - 1:15, the third lignan - 1: 4, the fourth lignan -1: 2.

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