



ANALYSIS OF QUALITY INDICATORS OF DRY EXTRACT OF WORMWOOD

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Abstract

The research work consists in conducting a qualitative analysis of dry extract from aerial part of wormwood bitter. According to him, the pH of the dry extract of wormwood was 4.84, and the amount of dry residue was on average 3.86%. Qualitative reactions characteristic of flavonoids and tannins in dry extract are carried out. The average amount of tannins in dry extract was 6.87%, and the average amount of flavonoids (in the account of luteolin) was 5,6 mg/g.

Keywords: dry extract, biologically active substances, flavonoids, tannins, qualitative and quantitative analysis.

Introduction

The Republic of Uzbekistan is rich in reserves of plant raw materials, the chemical composition of which has various biologically active substances. Bitter Wormwood - *Artemisia absinthium* L.- perennial, herbaceous plant that reaches 50-100 sm in height. The product consists of a of aerial part of bitter wormwood and rooted leaves. The chemical composition of bitter wormwood is very rich. Grass and leaves contain up to 2% essential oils, which include camel, tuyol, fellandren, sesquiterpene lactones, absintin, anabsintin, artabsin bitter flavorings, as well as flavonoids and tannins [1; 2.]. In the literature, bitter wormwood has been shown to have antioxidant, antifungal, antimicrobial, antгельmintic, anti-wound, anti-carcinogenic, hepatoprotective, neuroprotective, antidepressant, analgesic, immunomodulatory, and cytotoxic effects [3]. Ochcur A.V. and his co-authors studied the quantitative composition of the herb *Artemisia* and found that the amount of protein in the composition is *A. vulgaris* L. da-7.5%, *a. abrotanum* L. at 10.5%, *A. annua* L. da-10.5%, *a. absinthium* L.-5.4%, *A. austriaca* found that da-6.3% [4].

Ivanessu B. and his co-authors found that Wormwood and its other species contain polyphenols [5]. The raw material of bitter wormwood is rich in essential oil, it is a liquid of dark blue or dark green color, with a sharp bitter taste. The essential oil extracted from the plant by the method of expulsion using water vapor includes camel





alcohol (up to 10-25%), camphor (up to 10%), pinene, cadinene, fenchone, β -caryophyllene, β -selinene, β -bisabolene, curcumen and chamazulene. [6].

The chemical composition and components of Wormwood and extracts in various solvents have attracted interest in medicine and biology [7; 8; 9].

The purpose of the work. The study of quality indicators of dry extract of bitter wormwood is a research goal.

Part of the experiment. Materials and methods. Dry extract of bitter wormwood was obtained using 70% ethyl alcohol in the percolation method. From its quality indicators: the pH, the amount of dry residue, the qualitative analysis of heavy metals, biologically active substances was studied.

A 10% aqueous extract of bitter wormwood dry extract was prepared to determine the pH in the seven Easy pH branded universal potentiometer developed at Mettler Toledo, a Swiss firm. The determination of the amount of dry residue of wormwood dry extract and heavy metals was carried out using the method presented in the state Pharmacopoeia of the Republic of Uzbekistan. According to the requirements of the state Pharmacopoeia of the Republic of Uzbekistan, when determining heavy metals in extracts, the color of the test solution should not be higher in intensity than the color of the specific solution. The results of experiments on the determination of heavy metals in the composition of dry extract of bitter wormwood have met the requirements of the state Pharmacopoeia of the Republic of Uzbekistan. For qualitative analysis of dry extract of bitter wormwood, qualitative reactions characteristic of flavonoids and tannins were carried out.

The content of flavonoids in the dry extract of bitter wormwood was analyzed in a highly effective liquid chromatography method. The experiments were carried out on a high-performance liquid chromatograph "Agilent 1200". To do this, 50 mg (exact strain) of the drug is placed in a penicillin bottle, 10 ml of 70% ethyl alcohol is added, dissolved, the pores are filtered into chromatographic bottles through a membrane filter measuring 0.45 μm . The experiments were carried out under the following conditions: a 0.1% solution of excitable phase triphthoracetic acid and a mixture of acetonitrile (70: 30); the chromatographic column has an Agilent Eclipse XDB – C18 with a particle size of 5 μm , size 4.6 \times 250 mm; total flow rate of the eluent is 1.0 ml/min; sample size for analysis is 10.20 μL ; detection wavelength is 254.320 nm [10].





Results

The pH of the dry extract of bitter wormwood was on average 4.84 when studied in the above method, while the amount of dry residue was on average 3.86%. The results obtained are shown in Table 1.

Table 1. **Number indicators of dry extract of bitter wormwood**

Nº	pH	Amount of dry residue, %
1	4,84	3,88
2	4,87	3,82
3	4,81	3,87
medial	4,84	3,86

In the qualitative analysis of the dry extract of bitter wormwood, the following research works are carried out. The dry extract is dissolved in water, a 5% alcohol solution of aluminium (III) chloride is instilled into the prepared aqueous solution, followed by a yellow colour (flavonoid-specific reaction). A solution of 1ml of lead acetate was dripped into the prepared aqueous solution, followed by a brown precipitate (reaction specific to the tannins).

The tannins contained in the dry extract of bitter wormwood were determined by the method presented in the General Pharmacopoeia article (GPhA 1.5.3.0008.15). According to him, the average content of tannins in the dry extract of bitter wormwood was 6.87%. The sum of flavonoids in the dry extract of bitter wormwood was analyzed in a highly effective liquid chromatography method. The average amount of flavonoids contained in the dry extract (in the account of luteolin) was 5,6 mg/g.

Conclusion

A qualitative analysis of dry extract of bitter wormwood was carried out. According to him, the pH of dry extract of bitter wormwood was 4.84, and the amount of dry residue was on average 3.86%. Qualitative reactions specific to flavonoids and tannins in dry extract have been conducted. The average amount of tannins in dry extract was 6.87%, and the average amount of flavonoids (in the account of luteolin) was 5.6 mg/g.

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