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CREATION OF DRY EXTRACTION TECHNOLOGY FROM RAW DANDELION TARAXACUM OFFICINALIS WIGG AND TARAXACUM KOK SAGHYZ RODIN.

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ABSTRACT: *Development of technology for obtaining a dry extract from raw materials of the herb Taraxacum officinale Wigg and Taraxacum Kok-saghyz L. Rodin species. For this purpose, practically acceptable ratios were selected for obtaining a liquid extract from plant materials. To obtain a dry extract, the centrifugal force method was used. Then an alcoholic mixture of water was used in different proportions.*

KEYWORDS: *dandelion, dry extract, Taraxacum officinale Wigg, Taraxacum kok-saghyz L. Rodin, method of analysis, medicinal plant, raw materials, comparative analysis.*

INTRODUCTION

The flora of the republic is rich in natural and geographical medicinal plants, it has 4500 species. Of these, only 1200 species have been studied for their medicinal properties [2,3].

One such medicinal plant is the *Taraxacum* family (medicinal dandelion, dandelion), which is a perennial herbaceous plant. This plant is *Taraxacum offisinalis* Wigg. There are 26 species in the flora of Uzbekistan. Plant materials contain taraxacin, taraxacerin, bitter glycosides, taraxerazole, R-sitosterol, sigmasterol, up to 24% inulin, nicotinic acid, nicotinamide, choline and other substances [1,2,4]. Dandelion, *Taraxacum Kok-saghyz* Rodin does not occur naturally in Uzbekistan and its cultivation has not yet been studied. It is found mainly in the Altai Territory of the Russian Federation, the Ufa region, the Republic of Crimea (peninsula), and industrial plantations are laid in Kudlinburg, Saxony-Anhalt,

Germany, USA, Ontario, Canada. In addition to the biologically active substances contained in *Taraxacum officinale* Wigg, *Taraxacum Kok Saghyz* Rodin also contains valuable natural rubber, which is widely used in the tire industry. [5,6,7] In our previous studies of *Taraxacum Kok Saghyz* Rodin used the seeds of species in the laboratory to establish industrial plantations. It is grown in a greenhouse and cultivated in nature. [1,4]

Purpose of the study. Development of technology for obtaining a dry extract from *Taraxacum officinalis* Wigg and *Taraxacum Kok-saghyz* Rodin varieties cultivated in Uzbekistan.

Research methods and objectives. To create a technology for obtaining a dry extract from plants *Taraxacum officinalis* Wigg and *Taraxacum Kok-saghyz* Rodin, plant materials are collected, cleaned, finely chopped with scissors and a sharp instrument, and the process of separating the liquid extract into a mixture of various proportions of alcohol in water is carried out as follows.

The pre-crushed topsoil of *Taraxacum officinalis* Wigg, i.e. leaves, flowers, roses, stems, was weighed on an analytical balance with 20.0 g (accurately weighed) of the dried plant. To obtain a liquid extract, it was necessary to prepare ethyl alcohol 40%. The process of preparing 40% ethyl alcohol: To prepare 40% ethyl alcohol, -416.7 ml of ethyl alcohol and 612.7 ml of water were measured and poured into a 2-liter volumetric flask. This 40% ethanol and aqueous solution was placed in a separate container for the root of the *Taraxacum* plant.

Figure 1. Surface of a *Taraxacum Kok-Saghyz* Rodin plant.

A similar amount of 40% ethyl alcohol was prepared in a sufficient amount of only 500 ml. At the same time, 208.35 ml of ethyl alcohol for plant roots and 306.35 ml of water were accurately measured and prepared in 1000 ml of a puddle. For the same 40% ethyl alcohol, 291.69 ml of ethyl alcohol and 428.89

ml of water were burned and 1000 ml of water were prepared. The surface was prepared taking into account that more solvent was used on it, since it occupied more volume than the root.

Figure 2. Taraxacum Kok-Saghyz is the root of the dandelion plant.

Now, 20 g (accurately weighed) of a dry flask was poured into the flask, a magnetic grain and a 40% alcoholic aqueous solvent were poured, the neck was closed with a Petri dish, heated through a magnetic stirrer, and began to rotate at a temperature of 60-65^0 C. Time control was carried out. Turned around slowly. We put on the first 2 hours. In parallel, the crushed surface was placed in a 1000 ml volumetric flask, magnetic grits and 40% alcohol aqueous solvent were poured onto it, the neck was closed with a Petri dish and heated through a magnetic stirrer, stirring at a temperature of 60-65^0 C. This solution was also used to determine the amount of deposited substance after standing in rhythm for 2 hours. In this case, the liquid extract was taken after 2 hours in a chemical bottle with 5 ml of solvent and placed in an oven to determine the dry residue at 100-105^0 C. When calculated according to the formula of the dry residue obtained from the root part of the plant, the mass of the dried beech was 9, 8266 mg with 5 ml of extract 9.9087 mg, and when divided by 0.0781 mg, the mass came out after drying. In percentage terms, it amounted to 30.8495%.

Repeatedly measured over the next 2 hours in a magnetic stirrer 5 ml of the same volume, 41.2775% with a mass of 8.2555 mg and 44.5955% with a mass of 8.9191 mg in 3 boxes. We decided that a 6-hour extraction process was enough for us, since the result was almost the same after leaving 4 times for 8 hours and 1 day.

We performed a similar extraction in parallel with extraction of Taraxacum officinalis Wigg from the surface. In this case, 20 g of the dried plant was taken and placed in a flask for 720 ml (40%) of a water-

alcohol solution. Mix on a magnetic stirrer at a speed of once every two hours. After 2 hours, 5.0 ml of the extract was added to the dried chemical bottle, and the residue was determined at 100-105°C in an oven. We found that it contained 27.7% wt 5.5404 g, 30.324 wt% 6.0648 g 5 ml extract after 4 hours and 30.21 wt% 6.042 g 5 ml extract after 6 hours. After 8 hours and then left for a day, the dry amount did not exceed 30%. Therefore, the extract obtained from this solution, we decided to stop after 6 hours.

Figure 3. The process of extraction from vegetable raw materials. Left. 1st above-ground part. 2nd root.

We decided to continue with our next job by drying the 40% liquid extract. To do this, the rotor was poured into an evaporator (D-LAB RE 100-Pro) in the form of a liquid extract. Alcohol and water were evaporated until the liquid became the required density. After the rotor was condensed from the evaporator, the mass was taken into a container and kept in an oven at 60–650 C until moisture was completely preserved. It was measured that 20 g to 8.0 g of dry extract was obtained from the root of Taraxacum officinalis Wigg (walnut) and 6.3 g from the surface.

We determined that our next job was to produce a 60% alcohol, aqueous liquid extract. To do this, we started by preparing a 60% alcohol solvent. Thus, we calculated that 625 ml of 96% alcohol, 405.2 ml of water will be required for 1 liter of alcohol solution. Then a solvent was prepared by adding 312.5 ml of alcohol and 202.5 ml of purified water, which was enough for 500 ml, i.e. half a portion of the root. Since the surface required more solvent, we prepared by mixing 437.5 ml of 96% alcohol and 283.6 ml of water in a ratio of 700 ml of 60% solvent.

In the same way, a dry root was poured into a test tube weighing 20 g (exact weight), a magnetic ball and 60% alcohol aqueous solvent were poured, covered with a Petri dish on top and heated through a magnetic stirrer at 60-65° C. Time was taken under control and slowly rotated . We put on the first 2 hours. At the same time, the aerial part was placed in a 1000 ml volumetric flask, 700 ml of a 40% alcohol aqueous

solvent was poured onto it, the neck was placed inside the magnetic ball, the neck was closed with a Petri dish and heated through a magnetic stirrer, stirred at a temperature of 60-65^0 C. This solution was also determined to determine the amount of the substance contained in it after keeping at a temperature for 2 hours.

In this case, the liquid extract was taken after 2 hours into a chemical bottle with 5 ml of solvent and placed in an oven to determine the dry residue at 100-105^0 C. When calculated by the formula of the dry residue obtained from the root part of the plant, the weight of the dried bottle was 10, 5418 mg and 10.5829 mg with 5 ml of extract, and the mass obtained after drying by splitting 0.0411 mg. In percentage terms, it amounted to 22.605%. The next 2 hours was stirred in a magnetic stirrer with 5 ml of the same flask, 24.64% at a mass of 4.928 mg and 26.51% at a mass of 3.302 mg in 3 flasks. We also made sure that a 6-hour extraction process was enough for us, because after we left it for 8 hours and 1 day in 4 cases, we got an almost identical result of 26.51%.

This was part of the dry amount we got from the surface. In the same way, after the first 2 hours, the root is measured by heating 5 ml of a mixed solution weighing 22.9495%, weighing 4.58 g, after 4 hours with a solution of 5 ml of a solution at 6.7624 grams by 33.812%, after 6 hours with a mass of 7.3312 g contained 36.656% active substance. Just as we identified our previous liquid extracts, we left this solution for 8 hours a day and dried it in a 5 ml bottle. Given that the result was at 36.9325% at 7.3865g as expected, we agreed with the team that the 6-hour extract was enough for us. The reason is that 0.35% less substance was released in the additional 2 hours. From the looks of it, our next quest might encourage you to take another percentage of the extract.

Figure 4. Rotary Evaporator Extraction Process

We decided to continue our next task by drying the 60% liquid extract. To do this, the rotor was poured into an evaporator (D-LAB RE 100-Pro) in the form of a liquid extract. Alcohol and water were evaporated until the liquid became the required density. After the rotor condensed from the evaporator, the

mass was taken into a container and kept in an oven at 60–65^{0}C until moisture was completely preserved. It was measured that 20 g to 6.1 g of dry extract was obtained from the root of Taraxacum officinalis Wigg (willow) and 4.5 g from the surface. Now that our 40% and 60% alcohol and water extracts have dried, we need to get a 20% extract. This, in turn, opened the way to obtaining dry extracts from the finished medicinal plant in liquid form. For the liquid extract, 104.175 ml of alcohol per 500 ml for the root, 410.525 ml of water from 96% alcohol and purified water were prepared according to the alcohol preparation scheme of the State Pharmacopoeia XI.

For the aerial part, we prepared a 1000 ml flask, 574.035 ml of purified water, 145.845 ml of ethyl alcohol from 96% ethyl alcohol in a 20% alcohol solvent.

The preparation of a liquid extract of the medicinal plant was carried out by taking 20 g of the pure mass of the medicinal plant, 500 ml of the root solvent and 700 ml of the above surface in parallel into a separate magnetic stirrer, adding magnetic grits. The percentage was calculated by adding 5 ml of the extract to a clean, dry bottle every 2 hours.

Table 1

№	Product name	Extract %	Received mass, gr
1	Dandelion root	20% ethyl alcohol-water	6,0
2	The aerial part of the dandelion	20% ethyl alcohol-water	6,0
3	Dandelion root	40% ethyl alcohol-water	8,0
4	The aerial part of the dandelion	40% ethyl alcohol-water	6,3
5	Dandelion root	60% ethyl alcohol-water	6,1
6	The aerial part of the dandelion	60% ethyl alcohol-water	4,5

Conclusion: The dry extract from the obtained liquid extract was obtained on the basis of regulatory documents. From 20 g *Taraxacum officinalis* Wigg (root and part of the stem) 20% alcohol-aqueous plant product 6.0 g of the same from the root and part of the stem, 8.0 g from the root 40% alcohol-water extract, 6.3 g from the part of the stem, 20 g plant . A dry extract of 60% alcohol and water was obtained from the product from 6.1 g of dandelion root per 4.5 g of part of the stem. Moderate conditions for obtaining extracts were selected and a technology was developed.

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