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Research Article

PAINTER ROYAN TECHNOLOGY OF OBTAINING DRY EXTRACT OF PLANT ROOTS

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ABSTRACT

In this article, Rubia tinctoru L technology of obtaining a dry extract of a medicinal plant . Rubia tinctoru L the plant It is used in medicine and folk economy and dyeing fabrics and materials natural chemicals extracted from plants as paint their uses are highlighted.

KEYWORDS

Rubia tinctoru L , Rubia iberica, technology, alizarin, anthracene, ruberythric acid, galiosin, purpurin, xanthopurpurin, pseudopurpurin, rubiadin-glucoside, munistin, lucidin, ibericin, urinary tract stone, kidney stone, gall bladder stone, gout , cotton, fabric, natural dye.

INTRODUCTION

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Today's per day on a global scale extensive measures are being taken to organize scientific research at a high level in the direction of developing the creation of effective drugs based on local raw materials and to provide the national pharmaceutical market with quality drugs. On the basis of the measures implemented in this direction, a number of important practical results are being achieved in terms of organizing the development of competitive preparations based on natural plant raw materials. As it is known , studying the biology of Rubia tinctorum plant species, which has been used by people for many years, and preparing a cheap and high-quality medicine that replaces imports by separating natural medicines from local raw materials is the first step. creation of material bases is of urgent importance. Such preparations can be isolated from the medicinal plant Rubia tinctorum and used in medical practice and folk economy.

THEORETICAL PART

Dyed roan - Rubia tinctorum L. and Georgian roan Rubia iberica C. Koch. (Rubia tinctorum L. var. Iberica Fisch. ex DC) belongs to the Rubicaeae family. It is found in Ukraine, Moldova, in the south and southeast of the European part of Russia, in the Caucasus (Azerbaijan, Georgia, Armenia, Dagestan) and Central Asia. in Uzbekistan Basically ditch on the sides , bushes _ between , channels along , in the fields and in the gardens grows [1-4]

Colorful dream The species of the plant is a perennial plant with a height of 30-150 cm. The rhizome is long, creeping, branched, cylindrical, thick, jointed, multi-headed. The stem is covered with several, four-pointed, jointed, spiky and looped coarse hairs. The leaf is oval-ovate, shiny, the veins on the lower side are covered with coarse hairs with loops, and they are arranged in bundles of 4-6 on the stem with a very short band. The flowers are small, greenish-yellow in color, gathered in a semi-umbrella growing from the axils of the leaves, forming a bag-shaped inflorescence. The calyx is not clearly known, the corolla is 5, united, funnel-shaped, the paternity is 5, the maternal node is 2-digit, located below. The fruit is a 1-2-seeded, spherical, first red, later turning black wet fruit. It blooms in June-August, the fruit ripens in August-September. Rubia tinctorum .

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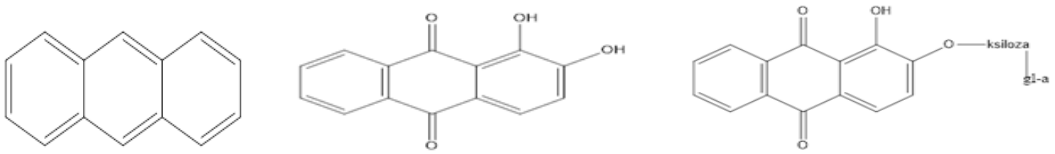
Figure 1. Colorful dream Above ground and below (root) part of the plant

Colorful dream The finished product of the harvested plant consists of rhizomes and root pieces. The thickness of rhizome pieces depends on the year they were dug up from the ground. One-year-olds are thin, two-year-olds are thick, and they get thicker every year. The upper side is reddish brown. When it is cut crosswise, the bark layer is red-brown, and the wood part is red. The product has a characteristic weak smell, sweeter at first, and then a slightly sour and bitter taste. The rhizome turns the water brownish-red. The underground part (root) of the Rubia tinctorum plant is shown to be thin in the first year and to grow in the second and third year (Fig. 2).

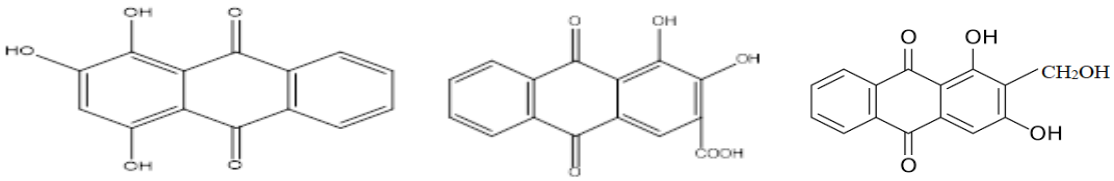
Figure 2. Colorful dream The root of the plant is thin in the first year and grows in the second and third year

Colorful dream the moisture content of the product harvested from the plant is 13%, total ash is 10%, other parts of the plant (stems, leaves, etc.) are 1.5%, organic compounds are 1% and mineral compounds are more than 1%, the content of the product the amount of anthraglycosides (those united in the form of glycosides) should not be less than 3% [5-7] .

rhizome of Rubia tinctorum contains up to 5-6% anthracene compounds (alizarin, ruberythric acid, galiosin, purpurin, xanthopurpurin, pseudopurpurin, rubiadin-glucoside, munistin, lucidin, ibericin, etc.).



Anthracene Alizarin Ruberythric acid



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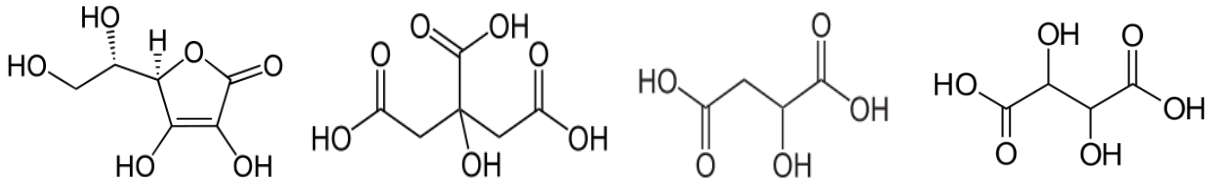
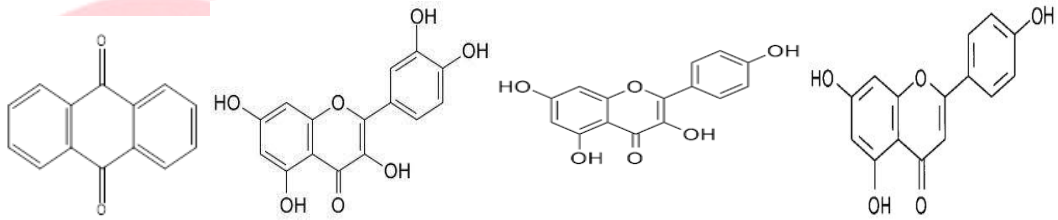
Purpurin Pseudopurpurin lucidin

In addition to anthracene products, organic acids in plant roots contain up to 15% sugars, proteins, pectin substances, ascorbic acid , and citric, malic, and tartaric acids. occurs.



ascorbic acid citric acid malic acid tartaric acid

The root of Rubia tinctorum plant contains carbohydrates, phenolic acids and their derivatives, coumarin, anthraquinone, triterpenoids, flavonoids (quercetin, kaempferol, apigenin).



antiroquinone quercetin kaempferol apigenin

Colorful dream In medicine, the plant has antispasmodic and diuretic effects, as well as softening of kidney stones (phosphates). Therefore, medicinal preparations are used in ureteral stones, kidney stones, gall bladder stones and gout . [5-7]

Colorful dream In addition to the medicinal use of the plant, dyeing with natural chemicals extracted from the royan plant as a natural dye for dyeing threads, glam, fabrics, and materials grown in our Republic, which is mainly produced from silk and cotton , leads to an increase in the number of jobs [5-7], (Fig. 3).

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Figure 3 . Colorful dream yarn dyed with natural chemicals extracted from plants

DISCUSSION OF RESULTS

Today's in the day a new product developed in the field of pharmaceuticals and medicine through a scientific approach based on natural medicinal plants in the world if a bioactive additive (BFQ) is created and put into production and jobs are created, the number of unemployed is reduced and Satisfying the internal demand of our republic and creating the opportunity to export abroad according to many our scientists scientific research are taking Colorful dream "ZPG 150" that allows drying of 200 l of solution per hour in the scientific and technological center adapted to GMP conditions, launched in cooperation with the scientists of the Institute of Bioorganic Chemistry named after academician OSSadikov of the UzR FA . » (PRC) experiments were carried out in the device that allows extraction methods to be carried out in a spray drying extractor as follows. Paint coating on the extraction device plant 10.0 kg was crushed into 4-6 mm size and 100.0 l (hydromodule 1:10) of 80% etonol was poured , then water vapor was sent to the "steam jacket" of the extractor and heated to a temperature of 60 C. heated and left for 24 hours. The extract is drawn from the lower part of the extractor by a specially installed pump, driven in a specially equipped rotor equipment with 80% ethanol , and dyed. Aqueous extract of the plant was collected and poured. The extraction process was carried out under the same conditions as the first one. For this purpose, another 100.0 l (hydromodule 1:10) of 80% etonol was prepared from the extracted ethanol and drained from the upper part of the extractor again by raining. extraction was performed three times in this way. At the end of the extraction process, the extract (60, l) was poured and the results were analyzed (Table 1).

Table 1

Rubia tinctorum plant with 80% ethanol under 60 C temperature

Number of extract infusions	Raw material weight kg	Extraction time, hours	Raw materials and 80% ethanol	80% ethanol extract (ml)	Station %
1	10	24	1:10	100	-
2	again	24	1:10	100	-
3	again	24	1:10	100	
total	10	24	1:10	300	16.9

Production and drying of Rubia tinctorum dry extract technological general block sx was developed . Rubia tinctorum plant is crushed in a mill (1) in size 4-6 mm, weighed on a scale (2), placed in an extractor (5) in the amount of 10 kg, and from a scale (3, 4) 100 l (hydromodule 1:10) 80 % etonol was placed and stewed for a day for 24 hours. In this method, the raw material was extracted 3 times. The resulting 280 l extract was filtered on a notch filter (8) and collected in a vessel (9) and condensed in a vacuum evaporator (10) until 25 l,

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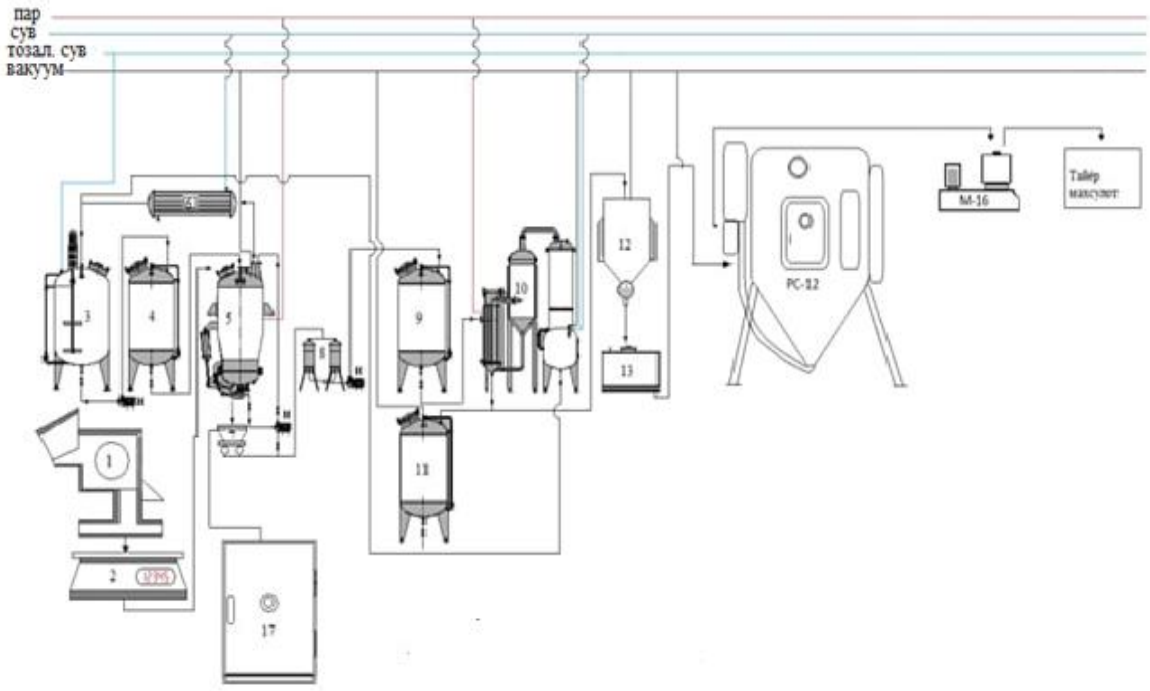
i.e. 15% dry residue, and cooled (12). Then (13) was poured into a vessel and spray-dried in an Anhydro No. 2 (Denmark) device . It was dried in a spray dryer with hot air inlet at 170°C, outlet at 80°C, air pressure 0.2 MPa for 50 minutes (RS-12). The dry extract substance (M-16) with a content of not less than 16-17% of the obtained product was crushed and packaged as a finished product. The technological process and device scheme for extracting dry extract from the plant was developed (Scheme 1).

Scheme 1

Technological scheme of the process of obtaining the substance " Rubia tinctorum ".



(1-mill, 2-weighing, 3,4- (60°C 80% etonol) tank, 5,6,7-extractor, refrigerator, trolley for shot, 8-filter, 9-container for filtered extract, 10 -vacuum evaporator equipment, 11-container for extracted solvent, 12-(for settling) separation funnel, 13-container, RS-12 spray dryer, M-16 grinder, 17- drying cabinet .

Colorful dream The appearance of the substance obtained by the extraction method of the plant root extract in 80% ethanol in a spray drying extractor is presented in (Fig. 4).

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Figure 4. Colorful dream the substance of the root of the plant and its extract in 80% ethanol.

Colorful dream The root extract of the plant in 80% ethanol was extracted by spray drying extractor. In the spray dryer, the inlet of the hot air stream was set to 170°C, and the outlet to 80°C. The amount of the obtained product is not less than 16-17% dry extract substance was crushed and packaged as a finished product.

CONCLUSION

1. A painting The protective substance was extracted by spraying the extract of the root of the plant in 80% ethanol in an extractor , and it was determined that the amount of the obtained product should not be less than 16-17%.

2. Colorful dream When extracting the substance of the root of the plant in the spray drying device , the inlet of the hot air stream was set at an average of 170°C, and the outlet at 80°C.

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