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Research Article

# PAINTER ROYAN OBTAIN DRY EXTRACT OF THE ROOT OF THE PLANT AND DETERMINATION OF ACUTE TOXICITY

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## ABSTRACT

In this article, Rubia tinctoru L Block diagram of obtaining a dry extract of a medicinal plant and determination of acute toxicity. 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.

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KEYWORDS

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

## INTRODUCTION

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 , it is important to study the biology of Rubia tinctorum plant species , which have been used by people for many years, and to separate natural medicines from local raw materials, to prepare inexpensive and high-quality drugs that can replace imports , and to create the initial raw material bases. 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, the south of the European part of Russia, the southeast, 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 plant species is a perennial herb 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 amount of anthraglycosides (combined as glycosides) in the product is 3 It should not be less than % [5-7] .

rhizome of Rubia tinctorum contains up to 5-6% anthracene compounds (alizarin, ruberythric acid,

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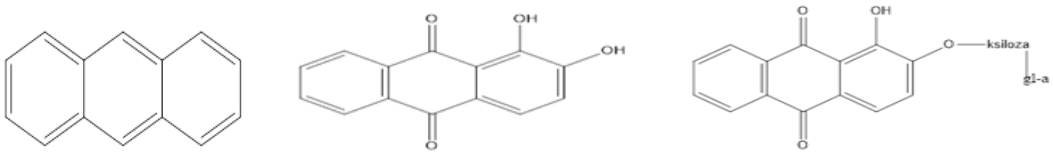
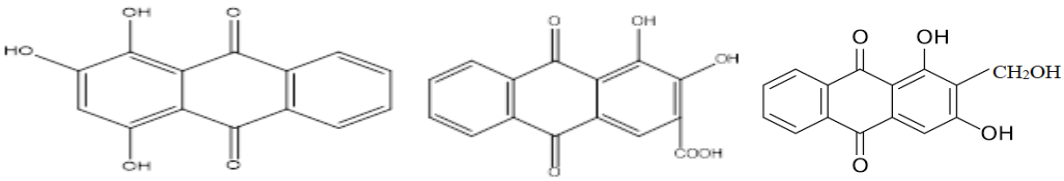
galiosin, purpurin, xanthopurpurin, pseudopurpurin, rubiadin-glucoside, munistin, lucidin, ibericin, etc.).

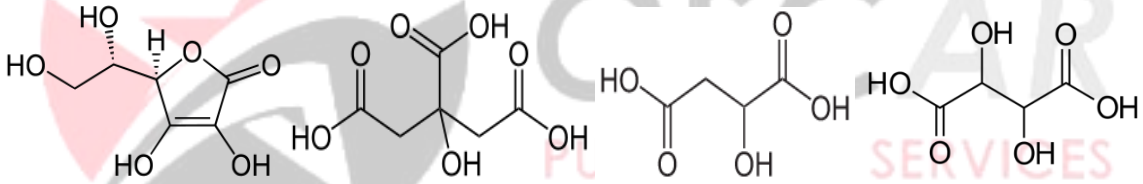



**Anthracene Alizarin Ruberythric acid**



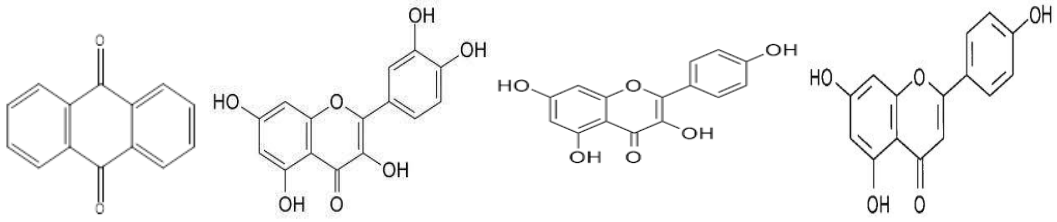

**Purpurin Pseudopurpurin lucidin**

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 for ureteral stones, kidney stones, gallstones and gout . [5-7]

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Colorful dream In addition to the medicinal use of the plant, dyeing with natural chemicals extracted from the plant as a natural dye for the dyeing of threads, glam, fabrics, and materials grown in our Republic, which leads to an increase in work hours [5-7], ( Figure 3).

**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 plant in cooperation with scientists of the Institute of Bioorganic Chemistry named after Academician O.S. Sodikov Experiments were carried out in the spray drying extractor "ZPG 150" (XPR) model , which allows drying 200 l of solution per hour in the scientific and technological center adapted to GMP conditions, which was launched under the experimental production enterprise of the Institute of Chemistry of Plant Substances of the Russian Federation . Experiments were carried out 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 injected into the "steam jacket" of the extractor, heated to a temperature of 60 C 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).

**1 - table**

**Rubia tinctorum plant with 80% ethanol at 60 C**

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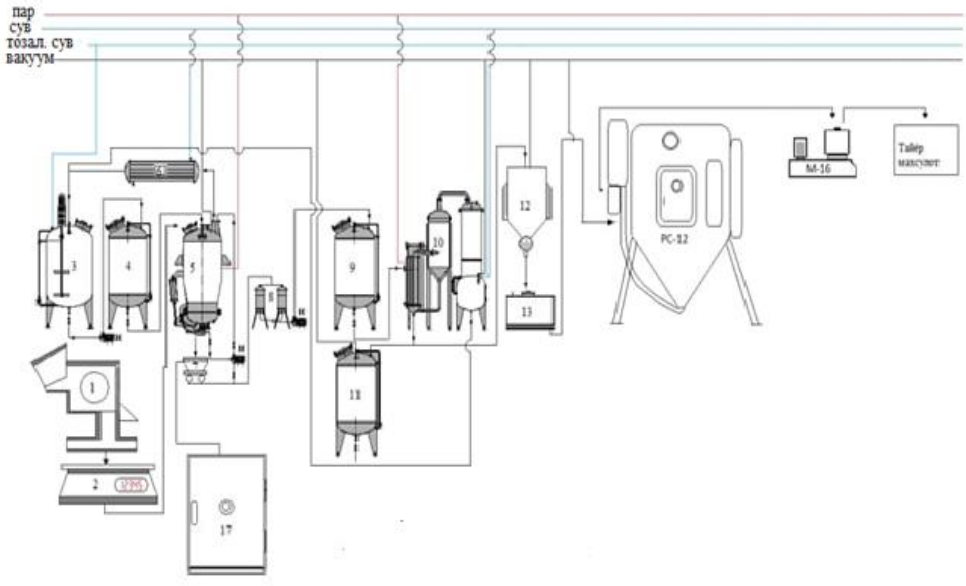
| Number of extract infusions | Raw material weight kg | Extraction time, hours | Raw materials and 80% ethanol | 80% ethanol extract (ml) | Substance % |
|---|---|---|---|---|---|
| 1 | 10 | 24 | 1:10 | 100 | - |
| 2 | again | 24 | 1:10 | 100 | - |
| 3 | again | 24 | 1:10 | 100 | |
| total | 10 | 24 | 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 of 4-6 mm, weighed on a scale (2), placed in an extractor (5) in the amount of 10 kg, and 100 l (hydromodule 1:10) of 80% etonol is placed in a measuring cup (3, 4) for 24 hours. was kept for a day. 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, 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**

**" Rubia tinctorum ".**



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(1-mill, 2-scale, 3,4- (60°C 80% etonol ) container, 5,6,7-extractor, refrigerator, cart 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 (Fig. 4).

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

Colorful dream to determine the acute toxicity of the root and dry substance of the plant The pharmacology and screening of biologically active compounds were examined in the laboratory of the Institute of Bioorganic Chemistry of the Russian Federation FA . Samples for research were presented in powder form.

Studies on the determination of acute toxicity dye royan The samples of the root and dry substance of the plant were taken. Experiments were performed on male white laboratory mice with a body weight of 20±2.0 g. Research was conducted in a generally accepted way. Each sample was studied at 5 different doses, 6 mice were taken per group.

All pharmacological studies were performed in healthy, sexed, quarantined mice for 14 days. The samples were injected into the stomach of mice in doses of 500, 1000, 1500, 2000 and 3000 mg/kg using a special probe. The animals of the control group were given 0.5 ml of distilled water. On the first day of the experiment, the animals of the study and control groups were monitored in the laboratory for hourly general condition, observable tremors, and mortality as indicators of functional status. Then, for 2 weeks, in vivarium conditions, all groups were examined daily for the general condition, activity, fur coat, skin condition, rate and depth of breathing, urine output, body weight change and other indicators. All experimental animals were kept on the same routine diet, with unlimited access to food and water. [8,9].

At the end of the experiment, the average lethal dose (LD 50 ) and toxicity class of the tested drug were determined [10] .

Statistical calculation of the obtained results It was conducted on the basis of Windows XP (Excel) software.

Colorful dream root and dry substance of the plant general effects and acute toxicity were conducted in purebred white laboratory mice. The generally accepted method was used to determine the

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parameters of acute poisoning. The studied substance was injected into the stomach using a special probe in doses of 500, 1000, 1500, 2000 and 3000 mg/kg. The animals of the control group were given 0.5 ml of distilled water. On the first day of the experiment, the general condition of the animals was monitored hourly in the laboratory, where the survival rate, general condition, possible shivering and death during the experiment were monitored in the laboratory as indicators of their functional status. After that, for 2 weeks in the vivarium of the Institute of Bioorganic Chemistry, the general state and activity of the animals in all groups, the specific states of their behavior, the depth and speed of breathing, the condition of feathers, the skin cover, and the changes in body weight were monitored every day. All animals were kept in the same vivarium conditions on a common diet, water and food were not restricted.

Colorful dream root and dry substance of the plant 500, 1000, 1500, 2000 and 3000 mg/kg doses studied in the aforementioned animal parameters effects of acute poisoning were not observed. No animal deaths were observed at the above doses observed throughout the experiment. Animals in the experimental groups did not show any decrease in body weight when compared to the control group . Based on the obtained results, we can conclude that Boyokdar royan It was determined that the average lethal dose (LD 50 ) of the root and dry substance of the plant was >3000mg/kg when it was injected into the stomach of mice. The obtained results were analyzed (Table 2).

**Table 2**

**Colorful dream Indications of acute poisoning when the root and dry substance of the plant are injected into the stomach of mice**

| Groups | Animal type, sex | Dose a mg/kg , ml | Number of animals/ dead animals in the group | Average animal mass (1 day) | Average animal mass (14 days) | $LD_{50}$ with confidence interval g | $LD_{84}$ |
|---|---|---|---|---|---|---|---|
| Colorful dream The dry substance of the root of the plant | The mouse is male | 10 00 | 6/0 _ | 22 | 25 | > 500 0 mg/kg | |
| | | 2000 | 6/0 _ | 20 | 23 | | |
| | | 30 00 | 6/0 _ | 21 | 24 | | |
| | | 40 00 | 6/0 _ | 20 | 24 | | |
| | | 50 00 | 6/0 _ | 21 | 25 | | |
| Colorful dream the root of the plant is crushed | | 10 00 | 6/0 _ | 20 | 24 | | |
| | | 2000 | 6/0 _ | 21 | 24 | | |
| | | 30 00 | 6/0 _ | 20 | 23 | | |
| | | 40 00 | 6/0 _ | 21 | 25 | | |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | The mouse is male | 50 00 | 6/o _ | 21 | 24 | | |
| Control | The mouse is male | 0.5 | 6/o _ | 21 | 25 | | |

Colorful dream The results of the study of the acute toxicity of the root and dry substance of the plant showed that in mice that the average lethal dose (LD 50 ) after a single gastric injection is higher than 3000 mg/kg and the samples are non-toxic It was found that it belongs to the class of compounds.

## CONCLUSION

1. A colorful dream The protective substance was obtained by extracting the extract of the root of the plant in 80% ethanol in a spray-drying extractor .

2. Paint finish The results of the study of the acute toxicity of the root and dry substance of the plant showed that in mice that the average lethal dose (LD 50 ) after a single gastric injection is higher than 3000 mg/kg and the samples are non-toxic It was found that it belongs to the class of compounds.

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