THE CHEMICAL COMPOSITION OF ROSE PETALS AND ITS IMPORTANCE IN FOLK MEDICINE

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Abstract
This article provides information about the chemical composition of rose petals, the amount of polyphenols and vitamins, their benefits, types and significance of roses in folk medicine. The article also presents the results of determining the content of water-soluble vitamins in rose petals grown locally using high-performance liquid chromatography (HPLC).

How to Cite

Introduction. Rose (Rosa centifolia L) is a branched shrub perennial plant in the Rose family, which currently has more than 1,000 species[1]. Wild rose, prickly wild rose, wild rose with cinnamon and several other species are found in our region[2]. Rose is one of the plants that has long been used by mankind for decorative and medicinal purposes[3]. The treatment of diseases from essential oils, extracts from rose petals and jams made on their basis has been known for several centuries[4].

Rosehip contains vitamins, micro- and macro elements, essential oils, phenolic compounds, additives, carotenoids, organic acids, carbohydrates, tocopherols, flavonoids and many other biologically active compounds (Table 1). Due to the high healing properties of these compounds, it is important to prevent various diseases in the human body[5].

Table 1.
Biologically active compounds found in roses and their names.

<table>
<thead>
<tr>
<th>Biologically active Connections</th>
<th>Compound names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flavonols</td>
<td>Production of kempferola, isoramnetin-3-rhamnoside, quercetin-3-rhamnoside, quercetin-3-O-glucoside, quercetin pentoside</td>
</tr>
<tr>
<td>Flavanones</td>
<td>Eriodictyol, hexoside 1, 2, naringenin-goside 1-5, hesperetin</td>
</tr>
<tr>
<td>Flavonoids</td>
<td>Quercetin, isoquercitrin, quercitrin, rutin, hyperoside, tiliroside, bile acid</td>
</tr>
<tr>
<td>Flavanols</td>
<td>Cortexin, epicatekin</td>
</tr>
<tr>
<td>Carotenoids</td>
<td>beta-carotene, rubixanthin, lutein, lycopene, zeaxanthin</td>
</tr>
<tr>
<td>Fatty acids</td>
<td>Linoleic acid, linolenic acid, palmitic acid</td>
</tr>
<tr>
<td>Organic acids</td>
<td>Citric acid, malic acid, fumaric acid, ascorbic acid</td>
</tr>
<tr>
<td>Carbohydrates</td>
<td>Fructose, glucose, sucrose</td>
</tr>
</tbody>
</table>
More than 60 representatives of flavonoids in rose petals are contained in roses in the form of flavones, flavanones, flavones, dihydrochalcones and anthocyanins. The rose retains up to 0.3% of its essential oils, depending on the variety. On the other hand, the composition of essential oils consists of terpenoid alcohols, tannins, aldehydes, polyphenols, paraffins and cardiac glycosides such as geraniol, citronellol, eugenol, linalool, N-tricosan, hexattiacontane, nerol, 1-nonadecene, N-pentacosan.

Decoctions, tinctures, ointments from rosehip components in folk medicine show effective results for headache, toothache, earache, pneumonia, purulent diseases, stomach diseases, insomnia, intestinal ulcers, some tumor diseases, female genital diseases.

A medicinal product based on rose essential oils—rosanol—is used to treat kidney stone disease, gallbladder, urinary tract in the bladder.

Rose petals are also a rich source of vitamins and contain many B vitamins (B1, B2, B6, B9, B12), vitamin C, vitamin E and vitamin K. Today, vitamin-rich foods or biologically active dietary supplements are widely used to maintain the total amount of vitamins in the body. Food additives prepared on the basis of rose petals are one of the important natural sources to meet the daily requirement of the human body for vitamins.

One of the methods for determining the amount of vitamins in plants, food products and biologically active food additives is high-performance liquid chromatography (HPLC), the advantage of this method is that sampling in it is simple compared to other methods, in very low concentrations, with high sensitivity, high separation efficiency and favorable analysis conditions.

The experiment used a variety of red roses grown in the Andijan region. An extract is prepared from the sample in a dried state.

**Preparation of the sample solution.** To extract water-soluble vitamins from the test sample, 1 ml was measured, placed in a conical flask with a volume of 50 ml and 25 ml of 0.1 N HCl solution was added. The mixture was extracted in an ultrasonic bath of gt SONIC-D3 brand (China) at a temperature of 60°C for 20 minutes. Then the mixture was cooled, filtered and brought to 25 ml of water in a measuring flask. 1.5 ml of the extract was filtered in a 0.45 μm syringe filter and placed in a vial for analysis.

**The results obtained.**

**Determination of vitamins in samples.** A chromatogram of a rose petal was obtained (Fig.1), the results were processed and presented in Table 2.
Figure 1. Chromatograms for the determination of vitamins in rose petal extract.

Table 2.
The amount of vitamins in the extract and the exposure time

<table>
<thead>
<tr>
<th>Vitamins</th>
<th>Capture time, sec.</th>
<th>Concentration, mg/l</th>
<th>Quantity per 100 g of sample, mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin B1</td>
<td>2,066</td>
<td>1,728</td>
<td>4,235</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>3,018</td>
<td>63,347</td>
<td>155,262</td>
</tr>
<tr>
<td>Vitamin B9</td>
<td>13,635</td>
<td>10,466</td>
<td>25,652</td>
</tr>
<tr>
<td>Vitamin B2</td>
<td>14,454</td>
<td>10,329</td>
<td>25,316</td>
</tr>
<tr>
<td>Vitamin B6</td>
<td>5,019</td>
<td>12,669</td>
<td>31,051</td>
</tr>
</tbody>
</table>
The table shows that rose petals contain relatively large amounts of vitamin C, vitamin B12, vitamin B6, vitamin B2 and vitamin B9. The production of vitamin-rich food additives based on these petals is becoming important. Because rose petals are one of the inexpensive and widely available natural raw materials.

The amount of vitamins contained in different varieties of roses varies. For example: the vitamin C content in the red leaves of William Shakespeare is 22.5 mg/100 g, the white leaves of Bobby James contain 69.9 mg/100 g, and the yellow leaves of Frisia contain 69.7 mg/100 g. The amount of B1 in the analysis of B vitamins is as follows: William Shakespeare in red leaves 236.5 mg/100 g, Bobby James at 106.83 mg/100 g in white leaves and Frisia at 161.5 mg/100 g in yellow leaves, the amount of B6 is 17.1 mg/100 g in red leaves William Shakespeare, 23.08 mg/100 g in white leaves of Bobby James and 18.73 mg/100 g in yellow leaves of Frisia, the amount of B9 was found to be higher (at 155.262 mg/100 g and B6 at 31.051 mg/100 g) than the content of vitamins C and B6 (at B1, 235 mg/100 g and B9 at 25.316 mg/100 g), and the amount of B1 and B9.

**Discussion of the results:** When studying the content of water-soluble vitamins in the composition of red rose petals grown in the Andijan region in local conditions, it was experimentally determined that the local red rose petals contain the most abundant vitamin C, and the rarest vitamin is B1. When compared with the amount of vitamins in different rose varieties William shekispis red leaves, Bobby James White leaves, Frisian yellow leaves, the content of vitamins C and B6 was found to be higher (at 155.262 mg/100 g and B6 at 31.051 mg/100 g) than the content of vitamins C and B6 (at B1, 235 mg/100 g and B9 at 25.316 mg/100 g), and the amount of B1 and B9.

**Conclusion.** Based on the analysis of scientific literature, it was theoretically studied that rose petals are chemically rich in biologically active compounds and are a natural source in folk medicine, as well as in modern medicine for the treatment of various diseases. The content of water-soluble vitamins in aqueous extracts of rose petals was analyzed by HPLC.

The treatment of diseases in the method of folk medicine is now of practical importance, since the treatment of diseases using natural plants does not have any negative consequences for the body, in this regard, the creation of new receptors for food additives based on rose petals, the development of commodity codes based on the chemical composition of new products obtained is the main goal of.

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