

To the study of the antioxidant activity of the
leaves of the Common Peach *Persica vulgaris folia*

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SUMMARY

The study of the antioxidant activity of the infusion and thick extract of the leaves of the common peach *Persica vulgaris* L. The raw material for the study was the leaves collected in the vicinity of Maikop, Krasnodar Territory. To determine the antioxidant activity, a reaction with a stable free radical 2,2-diphenyl-1-picrylhydrazyl (DPPH) was used. The study was carried out by the spectrophotometric method. According to the results of the study, it was found that the infusion and thick extract of peach leaves have a moderate antioxidant activity, compared to the decoction of rose hips.

Key words: peach leaves, infusion, thick extract, antioxidant activity.

RESUME

Study of the antioxidant activity of the infusion and thick extract of peach common leaves *Persica vulgaris* L. was conducted. Raw peach leaves were collected in the vicinity of Maikop, Krasnodar Territory were used as raw materials for the study. To determine the antioxidant activity, reaction with a stable free radical of 2,2-diphenyl-1-picrylhydrazyl (DPPH) was used. The study was carried out by spectrophotometric method. According to the results of the study, it was found that the infusion and thick extract of peach leaves have a moderate antioxidant activity.

Keywords: common peach leaves, infusion, thick extract, antioxidant activity.

INTRODUCTION

The problem of creating phytopreparations is one of the urgent tasks in modern pharmacy. It can be solved by improving the quality of existing ones, as well as developing and introducing new drugs into medical practice based on natural wild-growing and cultivated types of medicinal plant materials.

Phytopreparations have a number of advantages over synthetic drugs: a relatively low risk of developing allergies, a milder therapeutic effect, a fairly wide range of therapeutic action and safety.

Currently, the role of free radical oxidation in the mechanisms of development of a number of diseases and pathological conditions is already considered proven: atherosclerosis, coronary heart disease, oncological diseases and many others. Free radicals have a damaging effect on cell membranes, metabolic processes are disrupted in the body, various products of intermediate metabolism accumulate, which leads to disturbances in the central nervous system, cardiovascular and immune systems. In particular, free radicals aggravate inflammatory processes in the body, promote the formation of atherosclerotic plaques in the coronary and cerebral vessels, and accelerate the aging of the body.

To date, it has been established that herbal peach preparations stimulate immunity, enhance the phagocytic activity of cells, and increase the production of antibodies. Peach leaf extract is recommended for the prevention of ARVI. The high efficiency of peach extracts is shown in relation to gynecological diseases. Peach flavonoids have an adaptogenic effect, improve physical performance, and increase resistance to stress and stress [2, 3].

According to the research results, herbal preparations of polyphenolic nature from common peach leaves increase the phagocytic activity of neutrophils and macrophages, promote active production of antibodies, increase the number of T-lymphocytes, that is, stimulate the immune system. Peach-based products, as well as the fruits themselves, have antioxidant properties, contribute to the inactivation of free radicals in the body, leading to age-related changes [2, 3].

In world medical practice, peach preparations are recommended to be used, inter alia, with increased unfavorable environmental stress, for the treatment of diseases of the respiratory system, digestion, prostate, for gynecological, cardiovascular, oncological diseases, as well as for the prevention of oncological diseases and increasing the immune status, prevention of the consequences of intoxication and inhibition of aging processes [2, 4, 5].

In the Russian Federation, extracts from peach leaves are currently used exclusively as part of biologically active additives such as Oleksin, Akan, Flavopersin, Persifen [6–9].

The aim of the work was to study the antioxidant activity of the infusion and thick extract peach leaves *Persica vulgaris* L.

MATERIALS AND METHODS

The objects of the study were peach leaves collected in the vicinity of Maikop, Krasnodar Territory, as well as extracts from raw materials: infusion of peach leaves; thick extract of common peach leaves.

To determine the antioxidant activity of the infusion and thick extract, a reaction with a stable free radical 2,2-diphenyl-1-picrylhydrazyl (DPPH) was used. The study was carried out by the spectrophotometric method.

Different volumes of peach leaf infusion (from 0.01 to 0.3 ml) diluted with water (1: 1) were added to 2 ml of a solution of DPPH in 95% ethyl alcohol with a concentration of 5 mg / 100 ml [10].

Determination of the antioxidant activity of the common peach extract was carried out spectrophotometrically. To 2 ml of a solution of DPPH in ethyl alcohol 95%, with a concentration of 5 mg / 100 ml, 1 ml of a solution with various concentrations of a thick extract of peach leaf was added. Most antioxidants take 30 minutes to complete most of the reaction with 2,2-diphenyl-1-picrylhydrazyl. Considering this fact, the optical density of the resulting solutions was measured after 30 minutes. The measurements were carried out on an SF 2000 spectrophotometer at a wavelength of 517 nm. A solution consisting of 2 ml of DPPH and 1 ml of water was used as a control. Next, we calculated the antioxidant activity, the absorption of the radical according to the formula:

$AOA (\%) = (A_{control} - A_{sample}) / A_{control} \times 100$, where

AOA - antioxidant activity;

$A_{control}$ - the optical density of the control solution; A_{sample}

is the optical density of the test solution.

We also determined the amount of infusion and thick extract required for 50% degradation of the DPPH radical (IC_{50}).

RESULTS AND DISCUSSION

The results of studying the antioxidant activity of infusion and thick extract from peach leaves in comparison with decoction of rose hips are presented, respectively, in table. 1, 2, 3.

Table 1

Antioxidant Activity of Peach Leaf Infusion

Dry residue, mg / ml	Optical density, nm	% radical binding
0.28	0.6568	20.4
0.57	0.5936	28.13
0.95	0.5085	38.43
1.14	0.3944	52.24
1.42	0.2469	70.1

table 2

Antioxidant activity of rosehip decoction

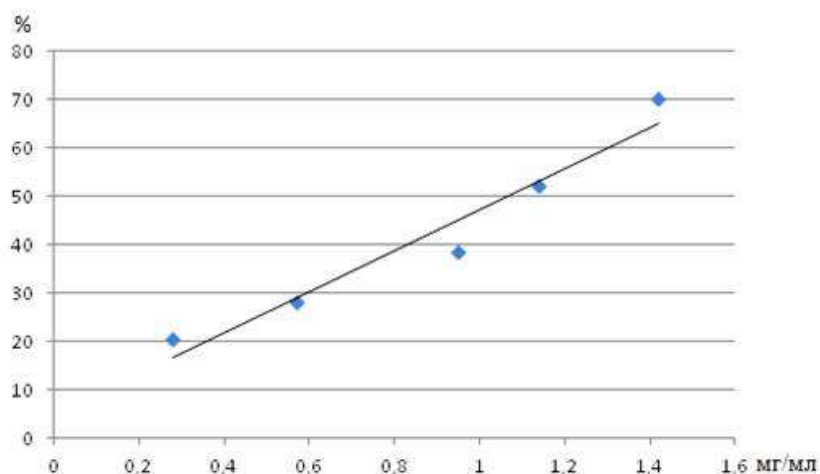
Dry residue, mg / ml	Optical density, nm	% radical binding
0.112	0.2695	74.13
0.106	0.3573	65.7
0.08	0.5615	46.1
0.064	0.6513	37.48
0.053	0.7040	32.42

Table 3

Antioxidant Activity of Thick Peach Leaf Extract

Concentration of thick extract, $\mu\text{g} / \text{ml}$	Optical density, nm	Antioxidant activity, %
100	0.7045	22.14
200	0.4903	45.81
300	0.4452	50.8
500	0.3978	56.03
800	0.1939	78.57

The IC₅₀ (the concentration of a substance capable of binding half the concentration of the DPPH radical). IC₅₀ for the infusion of peach leaves is 0.037 ml or 1.064 mg / ml in terms of dry residue. A rosehip decoction was used as a reference drug, the antioxidant properties of which are widely known.



Rice. 1. Dependence of the percentage (%) of free radical DPPH binding on the concentration of peach leaf infusion

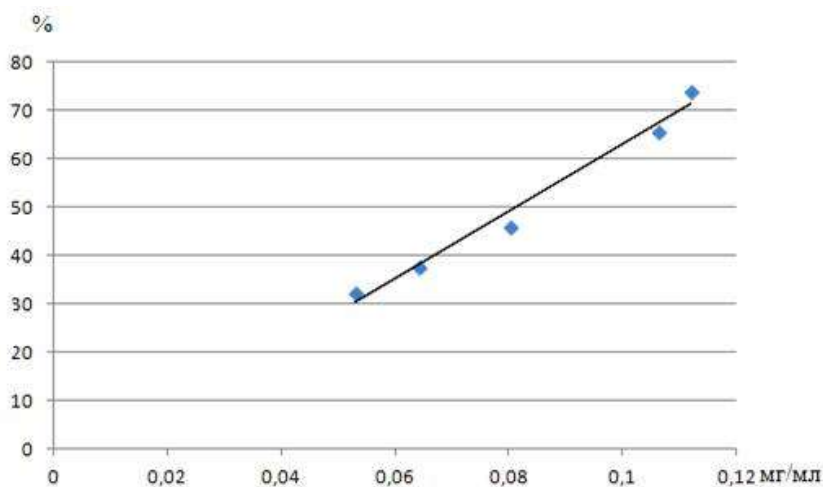
The IC₅₀... IC₅₀ for broth

rosehip fruit is 0.08132 mg / ml in terms of dry residue. This result indicates that the antioxidant activity of the rosehip decoction is more pronounced.

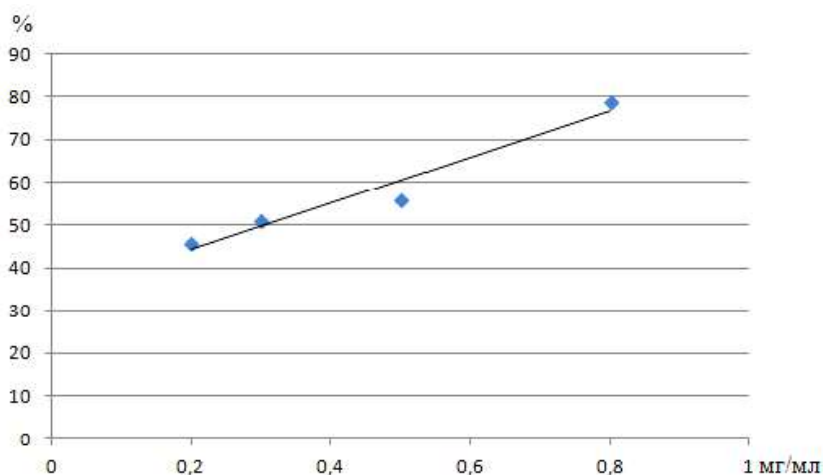
The IC₅₀, which is 0.304 mg / ml.

Thus, a moderate antioxidant activity of the infusion and thick extract of peach leaves was revealed in comparison with rose hips.

The antioxidant activity of the studied preparations from peach leaves may be due to the presence of a wide range of biologically active substances in the initial plant raw materials: tannins (tannin), flavonoids (nargenin, peicoside, quercetin, rutin, kaempferol), vitamins (including carotenoids), phenol glycosides (amygdalin), phenol carboxylic acids (chlorogenic, caffeic) [11].



Rice. 2. Dependence of the percentage (%) of free radical binding DPPH from the concentration of rosehip decoction



Rice. 3. Dependence of the percentage (%) of free radical binding DPPH from the concentration of thick peach leaf extract

CONCLUSIONS

1. As a result of the information and analytical study, it was found that the leaves

peach contain a wide range of biologically active substances, including antioxidant effects.

2. As a result of the experimental study, antioxidant activity of peach leaves and infusion of thick extract from them, comparable to the infusion of rose hips.

3. Rich chemical composition, broad spectrum of pharmacological activity and moderate the antioxidant effect of common peach leaves makes it advisable to further study this type of large-tonnage raw material in order to create new domestic herbal medicines.

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