

PRECLINICAL STUDIES OF BLUE DEWBERRY LEAVES

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Dewberry leaves are not included in the state pharmacopoeia of the Republic of Belarus, but are widely used in folk medicine. The purpose of the work was to evaluate the pharmacological activity of dewberry leaves using *in vitro* and *in vivo* methods. During the experiment, it was found that dewberry leaves have antioxidant, anti-inflammatory, and antimicrobial activities.

Keywords: *blue blackberry leaves, pharmacological activity, medicinal plant raw materials, preclinical studies.*

Dewberry leaves are a promising type of medicinal plant material, which has a rich chemical composition [1] and is widely used in folk medicine.

The object of the study was dewberry leaves, harvested before mid-July in the Republic of Belarus. The study of antioxidant activity was carried out using reagents DPPH and ABTS^{•+} [2]. Antimicrobial activity was studied by the agar diffusion method on strains of bacteria *E.coli*, *S.aureus*, *Paeruginosa*, *B.subtilis* and the fungus *C.albicans* [3]. Anti-inflammatory activity was studied *in vivo* in rats using a model of local carrageenan inflammation [4].

Antioxidant activity was studied using two free radical donors. In the experiment with ABTS^{•+}, the maximum inhibition of free radicals ($99.45 \pm 2.76\%$) was shown by the recovery obtained on the basis of ethyl alcohol 60%. In the experiment with DPPH, the same extraction reduced the amount of free radicals by $87.69 \pm 0.65\%$. It was previously established that ethyl alcohol 60% ensures maximum extraction of flavonoids and phenolic compounds [5], thus this extractant is optimal for obtaining dosage forms based on dewberry leaves.

Infusion and tincture of dewberry leaves are active against all microorganisms in the experiment. The tincture showed the greatest activity against *Paeruginosa* (zone of growth inhibition 13.5 ± 0.49 mm), the infusion – against *C.albicans* (14.00 ± 0.80 mm).

For local carrageenan inflammation, administration of an infusion at a dose of 500 mg/kg for 4 days leads to a reduction in edema by 47.5% compared to the control group, which is comparable to the activity of acetylsalicylic acid at a dose of 200 mg/kg in the experiment ($z=0,99$).

Dewberry leaves and extracts from them have antioxidant, anti-inflammatory and antimicrobial activity. Thus, blackberry leaves may be a promising source for the development of herbal medicines.

Thematic headings

76.31.31 Pharmacognosy

34.45.05 Methods of preclinical research and selection of medicines

Section of the nomenclature of specialties of the Higher Attestation Commission

04.14.01 Technology for obtaining drugs. Pharmaceutical chemistry, pharmacognosy. Organization of pharmaceutical business

Thematic rubric OECD Fields of Science

3.01 TU: Pharmacology and pharmaceuticals

ASJC topical rubricator

3003: Pharmacy

References

1. Secondary metabolites of *Rubus caesius* (Rosaceae) / D. M. Grochowski, J.W.Strawa, S. Granica, M. Tomczyk // Biochemical Systematics and Ecology. 2020. T. 92. P. 1-4. doi.org/10.1016/j.bse.2020.104111
2. Sheuchuk S.V., Gurina N.S. Antioxidant activity of the herb *Epilobium angustifolia* L. // Medical journal. 2021. N 1. P. 116-120.
3. Sheuchuk S.V., Adamovich T.G. Antimicrobial and antifungal activity of the herb *Epilobium angustifolium* L. // Recipe. 2021. N 2. P. 203-209
4. Mushkina V.W., Novickaya O.S., Makarenko C.V. Anti-inflammatory activity of black alder leaves // Scientific discussion: medical issues. 2016. N 5. P. 86-90.
5. Kasianiyk A.Y., Mushkina V.W. Standardization of dewberry leaves // Recipe. 2018. Vol. 21. № 1. P. 57-66.

Основное содержание

ДОКЛИНИЧЕСКИЕ ИССЛЕДОВАНИЯ ЛИСТЬЕВ ЕЖЕВИКИ СИЗОЙ

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Листья ежевики сизой не включены в государственную фармакопею Республики Беларусь, но при этом широко применяются в народной медицине. Целью работы являлась оценка фармакологической активности листьев ежевики сизой методами *in vitro* и *in vivo*. В ходе эксперимента установлено, что листья ежевики сизой обладают антиоксидантной, противовоспалительной, противомикробной активностями.

Ключевые слова: *листья ежевики сизой, фармакологическая активность, лекарственное растительное сырье, доклинические исследования.*

Литература

1. Secondary metabolites of *Rubus caesius* (Rosaceae) / D. M. Grochowski, J. W. Strawa, S. Granica, M. Tomczyk // Biochemical Systematics and Ecology. 2020. Т. 92. Р. 1-4. doi.org/10.1016/j.bse.2020.104111
2. Шевчук С.В., Гурина Н.С. Антиоксидантная активность травы кипрея узколистного (Иван-чая) // Медицинский журнал. 2021. N 1. С. 116-120.
3. Шевчук С.В., Адамович Т.Г. Антимикробная и противогрибковая активность травы кипрея узколистного *Epilobium angustifolium* L // Рецепт. 2021. N 2. С. 203-209
4. Мушкина О.В., Новицкая О.С., Макаренко С.В. Противовоспалительная активность ольхи черной листьев // Научная дискуссия: вопросы медицины. 2016. N 5. С. 86-90.
5. Касянюк Е.Ю., Мушкина О.В. Стандартизация листьев ежевики сизой // Рецепт. 2018. Т. 21. № 1. С. 57-66.

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