Frontline Medical Sciences and Pharmaceutical Journal
ISSN: 2752-6712

Determination of Antioxidant Activity of Althaea Officinalis Plant Extract Against Adrenaline In Vitro

Askarov Ibrokhim Rakhmonovich

Doctor of Chemical Sciences, Professor, Chairman of the Academy of Medicine of Uzbekistan, Honored inventor and rationalizer of Uzbekistan

Mominjonov Mirjalol Mukimjonovich

Doctor of Chemical Sciences, Associate Professor, Deputy Chairman of the Academy of Medicine of Uzbekistan

Khusanova Zoolhunor Israilovna

Master's student, Andijan State University, Andijan, Uzbekistan

ARTICLE INFO

Article history:
Submission Date: 24 October 2024
Accepted Date: 26 November 2024
Published Date: 28 January 2025
VOLUME: Vol.05 Issue01
Page No. 5-8
DOI: -
https://doi.org/10.37547/medical-fmspj-05-01-02

ABSTRACT

This article presents the results of the determination of antioxidant and antioxidant activity of the Althaéa officinalis plant and the results of the spectrophotometric analysis method. Based on the level of antioxidant activity, it is explained what diseases folk medicine can treat. Antioxidant activity is represented by 1 table and 1 diagram.

Keywords: Althaéa oficinális, antioxidant activity, inhibition, spectrophotometric method, In vitro method, autoxidation, adrenaline.

INTRODUCTION

Antoxidants are biological active substances that fight the harmful dioxide radicals in the body. They protect the body from many diseases and improve life activities. [1;28-30 page]

Free radicals are usually collected in cell membrane, begin to decompose them, resulting in the slow decomposition and death of the cells of the human body. As a result, the rapid ageing of the organizm, broken function of the damaged tissues, the slide of the immunity cause various diseases such as digestion, breathing and cardiovascular diseases.

There is a system of antoxidating protection of the human body, which works using primary antoxidant enzymes and secondary antoxins.

Studies of Althéa Officináidális have undergone by Benbassat and and Zaghloop under vitro. [2;182-page] Cleaning the ABTS, DFPG, hyppox and using the iron-related lipid peroxida analysis, the antioxidant activity of the root extract prepared by various extracts is assessed. They found that the water extract has weak antioxidant activity, and ethanol extract showed a good specific antioxidant activist. In addition, antioxidant properties of ethnoking extracts of mallows were assessed by various In Vitro tests. Extracts showed 85.5%, 91.2% and 96.4% indifferent to peroxidal of linoleic acid emulsion. In addition, extracts have been proved to protect the effective reduction in the same concentration (50 and 250 mg / ml), clearing free radicals, cleaning the supercoxide anionese radical hips and crossing metals. [3;1859-page].

Indonesian scientist M. Sadigara revealed that with the help of reducing iron analyzes, mallows' antioxidant skills change from strong to weak, relating to plant's colour (red-pink, pink, white) . [4;113-117- page]

African Scholar Zaghlool and his accounts studied the protective influence of mallow on rat's stomach ulcer against outside injuries. They found that swallowing mallow through mouth (100 mg/kg per day) can reduce significantly the number of wounds and the stomach ulcer index for 14 days. At the same time, all the parameters of all blood and mount forecasts were significantly corrected. [5;421- page].

African scientist J.Sales studied the antibacterial effect of extracts from the stem and fruit of the Althaéa officinális plant. Alcoholic extracts of the leaves of Althaéa officinalis proved to be effective against gram-positive bacteria but not against gram-negative bacteria at the concentrations tested.. [5;105- page].

Russian scientist M. Rezaei conducted studies on the effect of the Althaéa officinális plant on the treatment of external wounds. [6;112- page] .

The use of ethanolic extracts of M. Rezaei Althaéa officinalis accelerated the wound healing process and the development of wound in the exercise model of excision and wound healing in rats was determined. A study on the mucilage in Althaéa officinális showed that the mucilage in Althaéa officinális significantly improved wound healing and showed that healing was possible in a short time.[6;428-b].

In addition, Ye.I. Rayabinina from Russia and the scientists under his leadership have proven that the method developed for the assessment of antioxidant activity (AA%) in the analysis of autoxidation in the reaction of adrenalin inhibition is accepted as the value that determines the antioxidant activity of plant extracts. [6; 110-112, 7; 117-121 page]

There are also other methods for determining antioxidant activity. In our study, we studied the antioxidant activity of the Althaea officinalis plant by spectrophotometric analysis. [9;22-25 page]

The antioxidant activity of the Althaea officinalis plant sample was determined by the inhibition of the autoxidation reaction of adrenaline in vitro, and the sample prevented the formation of the free form of oxygen. As a result, it was determined that the sample has antioxidant properties.

The part of experimentation

Determining antioxidant activity of samples.

The samples submitted for analysis are evaluated by the method of inhibition of the autoxidation reaction of Adrenaline in vitro, that is, the ability of adrenaline to inhibit the autoxidation reaction and at the same time prevent the formation of reactive oxygen species (ROS). The antioxidant activity of the examined samples is expressed in percentages (AF%) according to the inhibition of autoxidation of adrenaline.

Preparation of aqueous extract from the stem part of Althaéa officinalis.

It was carried out by boiling 1 g of plant sample in 100 ml of water for 30 minutes in a flask equipped with a reflux condenser. The obtained extract was passed through a 0.45 μm syringe filter and used for analysis.

Spectrophotometric analysis.

Add 3 ml of 0.2 M carbonate (Na_2CO_3-$NaHCO_3$, pH=10.65) buffer and 0.15 ml of 0.18% solution of adrenaline tartrate, mix quickly and measure in a K7000 (YOKE, China) spectrophotometer in a cuvette with a thickness of 10 mm. The optical density D1 at a wavelength of 347 nm was determined every 30 seconds for 10 minutes.

45 mkl and 90 mkl of the tested plant extract, 3 ml of the buffer solution and 0.15 ml of the 0.18% solution of adrenaline tartrate were taken and mixed in the above manner, and the optical density at a wavelength of 347 nm was measured (D2).

Table 1. Measured optical densities of adrenaline and sample aqueous extracts.

Time	Adrenalin	Gulxayri	Time
0	0,1573	0,0362	0
30	0,3033	0,0784	30
60	0,421	0,1221	60
90	0,5211	0,165	90
120	0,6074	0,207	120

150	0,6815	0,2476	150
180	0,7433	0,2848	180
210	0,7939	0,3203	210
240	0,8333	0,3536	240
270	0,8652	0,3847	270
300	0,8897	0,4128	300
330	0,9078	0,4385	330
360	0,9215	0,4616	360
390	0,9322	0,4823	390
420	0,94	0,5012	420
450	0,9452	0,5187	450
480	0,9452	0,5337	480
510	0,9452	0,5476	510
540	0,9452	0,5604	540
570	0,9452	0,5715	570
600	0,9452	0,5827	600

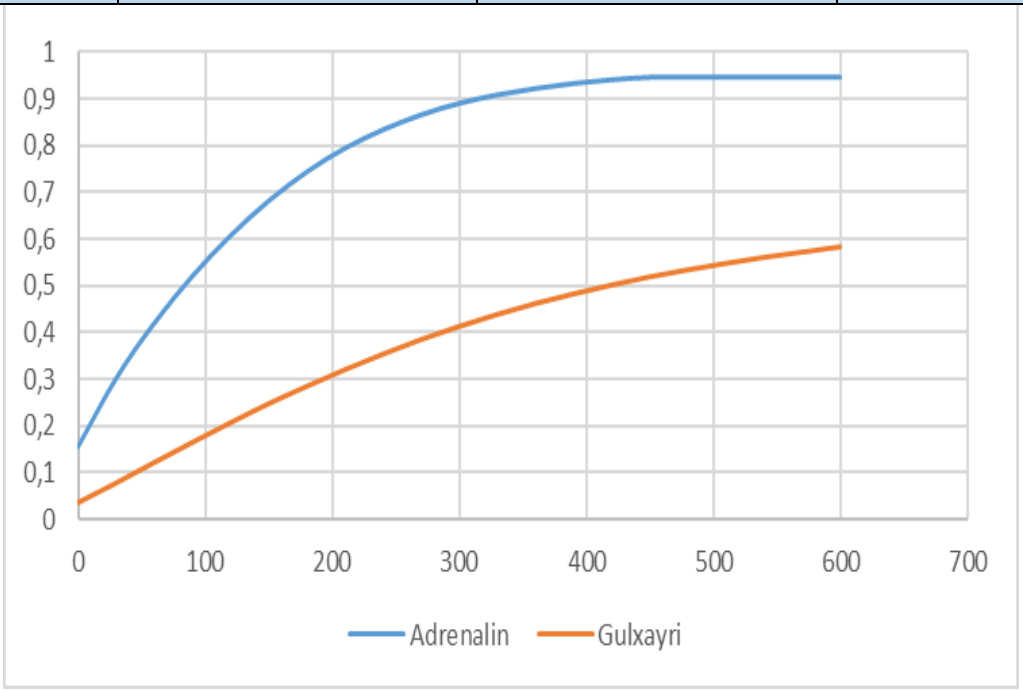

Figure 1. Diagram of optical density growth of adrenaline added to aqueous extract of adrenaline and samples (λ =347 nm).

The antioxidant activity of the examined samples is expressed in percentages (AF%) according to the inhibition of autoxidation of adrenaline and is expressed by the following formula:

$$AF\% = \frac{(D_1 - D_2)\cdot 100}{D_1} \qquad (1)$$

$$AF\% = \frac{(0.9452 - 0.5827)\cdot 100}{0.9452}$$

Here, D1 is the optical density of adrenaline tartrate solution added to the buffer, D2 is the optical density of the sample extract and adrenaline extract added to the buffer [9;10-15]. From the above experiment, it was determined that the antioxidant properties of medicinal cauliflower, its activity in aqueous solution is higher.

CONCLUSION

The fact that the antoxidan activity of the flower (Althaéa officinális) content is high even in the aqueous solution extract indicates that this plant

can be used as a medicinal food supplement in the future. Antioxidant activity of medicinal cauliflower is evidenced by its richness in biologically active Substances. Not only the above-ground part of it, but also the underground part-root has antioxidant activity. Calendula (Althaéa officinális) grown in Uzbekistan is distinguished by its medicinal properties. It can be seen from this that in the future, the consumption of medicinal safflower as an additional medicinal food supplement in daily life will increase the body's natural immunity. It can serve as an important and effective tool in the radicalization reactions that occur in the process of nutrition, in protecting the body from harmful radicals, and in strengthening the immune system.

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