ANTI-RADICAL ACTIVITY OF HEXAHYDROXYDIPHENOYL-1-(O-B-D-GLUCOPYRANOSIDE)-2-(O-4-D-GALLOYL-B-D-GLUCOPYRANOSIDE)

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Abstract

It is known that active forms of oxygen in the body maintain cell homeostasis and participate in oxidation-reduction processes, while excess production has a destructive effect on the cell and its structures. As a result, a number of pathological conditions arise. The development of free-radical processes in human tissue cells by many endogenous and exogenous pathways causes extensive oxidative damage, leading to various human diseases [1]. Therefore, the search for and study of regulators of free-radical processes based on biologically active compounds of plant origin remains relevant. In this regard, polyphenolic compounds are of particular interest, since they have long established themselves as powerful antioxidants [2]. As is known, polyphenolic compounds are an inexhaustible source of drugs with various therapeutic effects [3].

Methodology

To evaluate ARA in this work, we used the method of spectrophotometric measurement of the kinetics of the reduction of molecules of the stable radical 2,2-diphenyl-1-picrylhydrazyl (DPPH) by antioxidants [4]. To calculate various kinetic parameters of the chemical reaction, two points were used: 0.15 and 3.0 minute indicators. In this regard, a more informative method is considered to be the use of compounds bearing a free valence, which are stable organic radicals, in particular the stable radical of DPPH [5], since the AOA of hydrolyzable tannins is studied by their reduction of this stable radical. When hydrolyzable tannins are added to an alcohol solution of DPPH, the free-radical molecules are converted to a non-radical form, and the intensely violet solution of DPPH is discolored.

Results

In our studies, the antiradical activity of the polyphenol hexahydroxydiphenol-1-(o-b-d-glucopyranoside)-2-(o-4-d-galloyl-b-d-glucopyranoside) towards DPPH was analyzed. The experiments were carried out at concentrations of the polyphenolic compound of 5-10-15-20-25 μM. The concentration of 5 μM of the polyphenolic compound increased to 40.5±3.1%, the

concentration of 10 μM to 75.7±2.4%, the concentration of 15 μM to 83.8±0.2% and the concentration of 20-25 μM to 83.8. It was found that it neutralizes by 83.8±0.2% and by 83.9±0.6%. The obtained results show that the polyphenolic compound exhibits high antiradical activity in low concentrations.

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