THE STUDY OF ANTIVIRAL ACTIVITY OF ELDERBERRY BLOOM (SAMBUCUS NIGRA) GROWING IN AZERBAIJAN

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Abstract: Creation of antiviral preparations and consequently antiviral chemotherapy is still far from the high success. Plants are one of the basic sources of antiviral drugs. The Republic of Azerbaijan is located in the Caucasus Region of Eurasia that has a warm climate with rich flora. Elderberry bloom grows, as a wild herb, on the territory of the Republic. The aim of this investigation was to investigate the antiviral activity of Elderberry bloom against influenza virus. For this purpose, a natural juice of fresh fruits, water extracts, and water-ethanol extracts of the dried fruits were used. Antiviral activity of herbal juice and extracts was study by: a) direct contact in test-tube; b) contact on cell culture of chicken embryonic fibroblasts; c) on growing chicken embryos; d) white mice. Previously we had studied general toxicity, cytotoxicity, of all herbal preparations. Standard methods were applied at the cultivation of cells, at the determination of virus concentration, at the carriage of Hemagglutination Reaction (HAR) and at the statistical processing of results, as well as, a standard strain “PR-8”of influenza virus tip A was used in these investigations. Antiviral activity of Elderberry bloom has been appreciated by HAR. Previously research showed that all herbal preparations were not toxic for the cell cultures, for the growing chicken embryos and white mice. Results of investigations showed that natural juice and non diluted water-ethanol extract from Elderberry bloom and their 1:1, 1:10, 1:100 dilutions inhibits influenza virus outside of cell in direct contact. Non diluted water extract from dried fruits and its 1:1, 1:10 dilutions also inhibits influenza virus in direct contact in test-tube. After study of antiviral activity of herbal preparations against influenza virus on cell cultures we found that natural juice and non diluted water-ethanol extract from Elderberry bloom and their 1:1, 1:10 dilutions inhibits influenza virus in cell culture. Non diluted water extract from dried fruits and its 1:1 dilution also inhibits influenza virus. Next two series of investigations were devoted to study of antiviral activity of herbal preparations against influenza virus on growing chicken embryos and on white mice. Herbal preparations were added to the allantoic sac of growing chicken embryos and by intranasal introduction to mice in different time: before the infection by virus, synchronously and after inoculation of influenza virus in dose 100 LD₅₀. Results of research showed that natural juice and non diluted water-ethanol extract from Elderberry bloom, their 1:1, 1:10 dilutions, as well as non diluted water extract from dried fruits and its 1:1 dilution inhibits influenza virus on growing chicken embryos and on white mice. Best results were obtained when herbal preparations were added for 1 hour before the inoculation of influenza virus to growing chicken embryos and to white mice.

Keywords: antiviral activity, Elderberry bloom, chemotherapy, water-ethanol extract

Acknowledgements: A grant by the National Scientific Research Institute of Medical Prophylaxis and Republican Anti Plague Station supported this research.