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Antiviral effect of flavonoids in combinations with interferon or nucleoside analogues

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The antiviral effects of certain naturally occurring flavonoids combined with 5-ethyl-2'-deoxyuridine (EDU), acyclovir (ACV) or interferons (IFN) were studied on the multiplication of herpes simplex viruses and on pseudorabies (Aujeszky) virus. The simultaneous application of flavonoids and nucleoside analogues or IFN was studied in cell cultures with yield reduction method. In experiments when quercetin and human IFN- or chicken leukocyte IFN were combined the antiviral effect against herpes simplex virus type 1 was enhanced. Pronounced increase of antiviral activity could be demonstrated as the result of the combination of flavonoids with EDU or ACV. A mathematical formula for calculating the FIC (fractional inhibitory concentration) indices has been used to evaluate the drugs interaction. Quercetin, quercitrin and apigenin in combination with ACV resulted in synergistic antiviral effect against herpes simplex virus types 1 and 2, while additive antiviral effect has been observed in the case of simultaneous application of quercetin and IFN. As flavonoids enhance the intracellular cAMP level we suggest that ACV in combination with drugs increasing the amount of cAMP might be advantageous in the human antiviral therapy.

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New antiviral preparation Izatizon. Studies of the spectrum and of the antiviral directed mechanism.

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We have studied the new antiviral preparation izatizon (commercial name) and its analogs, izatin derivatives. Izatizon is used now in veterinary. Izatizon has antiviral activity against Herpes viruses, enteroviruses, A and B types influenza viruses, some retroviruses. Under optimal schemes of izatizon application we obtained 100% curability. These preparations are shown to penetrate through the hematoencephalic barrier. In vitro izatizon acts during early stage of viral infection and realizes its antiviral effect through interferon system. Izatizon and some of its derivatives can inhibit the reverse transcriptase from avian myeloblastosis virus (but no cellular DNA- and RNA-polymerases) at nontoxic concentrations. This data suggest the possibility of izatizon application for antiviral and AIDS therapy.