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[In vitro studies of the antiviral activity of ammonium humate against herpes simplex virus type 1 and type 2 (author's transl)]

[Article in German]

K D Thiel, R Klöcking, H Schweizer, M Sprössig

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Abstract

Ammonium humate, isolated from peat water, is a higher molecular polyphenolic compound with a strong antiviral activity against herpes simplex virus type 1 and type 2. Three cell lines were chosen for examining the cytotoxicity of ammonium humate: rabbit kidney primary cells, HEp-2- and FL-cells. As the light microscopic examination of both, the monolayers and the stained cover-glass cultures, revealed, concentrations of up to 5 microgram/ml ammonium humate can be used without hesitation for rabbit kidney primary cells (Fig. 1, 2) 200 microgram/ml for HEp-2-cells (Fig. 3, 4, 5), and 2000 microgram/ml for FL-cells. Fresh prepared rabbit kidney primary cells and suspended FL-cells (Tab. 1) are most sensitive against ammonium humate than monolayers. A remarcable plaque inhibition effect on the multiplication of herpes simplex virus type 1 and type 2 has been observed in all cell systems at concentrations of 0.5-20 microgram/ml ammonium humate (Fig. 6). The inhibition of virus multiplication at concentrations of greater than 10 microgram/ml ammonium humate was independent of the incubation temperature (Fig. 8). The adsorption of the virus to the cell surface has been found to be the most humate-sensitive phase of the herpesvirus multiplication cycle (Fig. 7, 9, 10). A prophylactic effect in vitro could be observed at concentrations greater than 10 microgram/ml ammonium humate (Fig. 11, 12).

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