Antiviral activity of Spirulina maxima against herpes simplex virus type 2.

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Abstract

Spirulina has been used in a variety of practical applications in biotechnology and medical sciences. This paper presents the antiviral activity found in a hot water extract (HWE) of a commercial preparation of Spirulina maxima, studied by a microplate inhibition assay, using several viruses. The HWE inhibited the infection for: herpes simplex virus type 2 (HSV-2), pseudorabies virus (PRV), human cytomegalovirus (HCMV), and HSV-1, and the 50% effective inhibition doses (ED(50)) were 0.069, 0.103, 0.142, and 0.333 mg/ml for each virus, respectively. For adenovirus the inhibition was less than 20%, and no inhibition was found for measles virus, subacute sclerosing panencephalitis virus (SSPE), vesicular stomatitis virus (VSV), poliovirus 1 and rotavirus SA-11, at concentrations of 2 mg/ml of the HWE. The highest antiviral activity was for HSV-2, with a selectivity index of 128. The antiviral activity was not due to a virucidal effect. Herpesvirus infection was inhibited at the initial events (adsorption and penetration) of the viral cycle. To initiate the isolation and identification of the compound that exhibits the antiviral activity of S. maxima, some extracts made by using several solvents with different polarity were evaluated by microplate inhibition assay using HSV-2. The highest antiviral activity was detected in the methanol-water 3:1, which suggests that the antiviral activity is probably due to highly polar compounds.

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