Anti-Herpesvirus Activities of *Pseudomonas* sp. S-17 Rhamnolipid and its Complex with Alginate

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The rhamnolipid biosurfactant PS-17 and its complex with the polysaccharide alginate, both produced by the *Pseudomonas* sp. S-17 strain, were studied for their antiviral activity against herpes simplex virus (HSV) types 1 and 2. They significantly inhibited the herpesvirus cytopathic effect (CPE) in the Madin-Darby bovine kidney (MDBK) cell line. The investigations were carried out according to the CPE inhibition assay protocol. The suppressive effect of the compounds on HSV replication was dose-dependent and occurred at concentrations lower than the critical micelle concentration of the surfactant. The 50% inhibitory concentration (IC_{50}) of rhamnolipid PS-17 was 14.5 μg/ml against HSV-1 and 13 μg/ml against HSV-2. The IC_{50} values of the complex were 435 μg/ml for HSV-1 and 482 μg/ml for HSV-2. The inhibitory effects of the substances were confirmed by measuring the infectious virus yields with the multicycle virus growth experimental design as well: $\Delta\log CCID_{50}$ of 1.84–2.0 against the two types of herpes simplex viruses by rhamnolipid PS-17 (20 μg/ml), and a strong reduction of the HSV-2 virus yield under the effect of the alginate complex at a concentration of 450 μg/ml. The results indicate that rhamnolipid PS-17 and its alginate complex may be considered as promising substances for the development of anti-herpetic compounds.

Key words: Herpes Simplex Virus, Rhamnolipid, Alginate