Abstract

Surfactin is an antibiotic produced by several strains of *B. subtilis*. Its broad range of biological activities is interesting from perspective of medicine, food industry and bioremediation and is based on its surface-active properties and interaction with biological membranes. The latter means mainly forming ion channels, conductive pores and with increasing concentration eventually disrupting membrane structure in detergent-like manner. Mechanism of resistance of producing strain against its own toxic product is not yet fully understood. This work shows that it could be based on surfactin target modification – which means altering membrane lipid composition. We were able to recognize surfactin-formed ion channels or pores with a broad range of conductivities spanning from 2 pS to 2 nS using BLM method. Liposome leakage assay with carboxyfluorescein revealed few distinct mechanisms of lysis, differing in amplitude, rate of lysis and cooperativity. Increased content of anionic lipids with conical shape, namely cardiolipin and phosphatidic acid led to substantial increased membrane resistance to surfactin-induced permeabilization.

Key words:

membrane, surfactin, *Bacillus subtilis*, cardiolipin, black lipid membranes, liposomes