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O.B. Balko, O.I. Balko, L.V. Avdeeva

D.K. Zabolotny Institute of Microbiology and Virology, NAS of Ukraine
154, Akademika Zabolotnoho Str., Kyiv, Ukraine, 03143
oleksandr.balko@gmail.com

PYOCINS AS REGULATORS OF *PSEUDOMONAS AERUGINOSA* BIOFILM FORMATION

Background. *Pseudomonas aeruginosa* is able to form a biofilm that protects cells under various conditions [1, 2]. Pyocins are one of the most widespread antagonism factors in *P. aeruginosa* [3]. These microorganisms synthesize various pyocins types with high activity and ability to prevent biofilm formation [4, 5]. Pyocins demonstrate nuclease activity [6], so they can perform a regulatory function. **Aim.** To assess the possibility of pyocins regulatory effect on *P. aeruginosa*. **Methods.** The activity of *P. aeruginosa* UCM B-333 pyocins was determined by the "double-layer agar" method [7]. Supernatants with pyocins were added in dilutions of 1:20–1:100 to suspensions of insensitive to them *P. aeruginosa* UCM B-2 and UCM B-9 with a titre of $1-2 \times 10^7$ CFU/ml. Biofilm formation was studied for 3 days in 96-well plates, then stained with gentian violet, 96% ethanol was added, and adsorption was determined on a Multiscan FC at 620 nm (**A620**). **Results.** 1:20 pyocins dilution increased **A620** of UCM B-2 by 3, 6, and 5.8 times compared to the untreated culture on 1, 2, and 3 days, and at a dilution of 1:50 – by 1.3; 2.6, and 2.8 times, respectively. Substances at a dilution of 1:100 did not change biofilm formation dynamics. The effect of 1:20 pyocins dilution on UCM B-9 was to increase in **A620** by 3.7; 4.7 and 3.5 times during the entire observation period, and dilutions of 1:50 and 1:100 – by 1.5 and 1.1 times only on the first day, respectively. Instead, on 2 and 3 days, these dilutions reduced the **A620** by 1.2–1.3 times. **Conclusions.** Pyocins at low dilutions can regulate the intensity of *P. aeruginosa* UCM B-2 and UCM B-9 biofilm formation.

Keywords: pyocins, biofilm formation, *Pseudomonas aeruginosa*, regulators.

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