HEMOLYTIC ACTIVITY OF DIFFERENT STRAINS OF *PSEUDOMONAS FLUORESCENS*

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Hemolytic power is a virulence factor for numerous bacterial pathogens. It is due to various factors: pore-forming toxins, thiol-dependent cytolysins, enzymes as phospholipases, biosurfactants, components of Type-Three Secretion System, or to a concomitant action of these molecules (1). In the genus *Pseudomonas,* the species *Pseudomona aeruginosa* is well characterized as an opportunistic pathogen. However, other species are more and more isolated in nosocomial infections, particularly *Pseudomonas fluorescens* (2). We have compared the hemolytic activity of two strains of *P. fluorescens* from different origins: the strain MF37, a rifampicin-resistant spontaneous mutant of strain MF0 isolated from milk, and the strain 1032 isolated from sputum of hospitalised patients. These two strains grow between 0°C and 30°C with an optimum at 28°C. The strain MF37 can survive several hours when transferred at 37°C, whereas the strain 1032 can grow at this temperature over some generations (3). On blood agar, these two strains are hemolytic. *P. fluorescens* MF37 grown at any temperature shows a weak hemolytic activity requiring a periode of chilling (0-4°C) after incubation for visualisation of the effect ("hot/cold" hemolysis). At all the temperatures tested, the strain 1032 was found β-hemolysin positive. A secreted hemolytic activity was investigated. Culture supernatant of strain MF37 shows no noticeable activity. In contrast, supernatant of strain 1032 shows maximal activity when grown under optimal growth temperature (28°C). Some extracellular enzymatic activities with optimal temperature different from that of optimal growth temperature have been already described in MF0, the parental strain of MF37 (4). In order to test the involvement of a phospholipase in the hemolytic activity of strain 1032, we studied the hydrolysis of para-Nitro Phenyl Phosphorylcholine (pNPPC) by culture supernatants after growth at different temperatures. The pNPPC hydrolytis activity shows a maximum with supernatant from bacteria grown at 8°C. This result suggests that hemolysis is not only due to phospholipase. The involvement of contact-dependant hemolysis (TTSS) and biosurfactant are under investigation.

References:

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