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Antibiotic or A Phage - Evaluation of Eradication Methods of *Salmonella*-Derived Biofilms under Different Growth Conditions in Laboratory Environment and Potential Applications

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Salmonella enterica is one of the most common food borne pathogens associated with contaminated poultry meat and eggs. Most common serotypes responsible for the disease in humans are *S. typhimurium* and *S. enteritidis*. *S. enterica* commonly live in astrointestinal tract of farming birds without causing any illness symptoms. However, any damage done to birds' intestines during meat processing may result in bacteria spreading onto the meat and also onto the equipment in the abattoir. *S. enterica* is able to form biofilm on various surfaces, and thus it can be more resistant to different methods of eradication. In our work, we have analysed the formation of biofilms of *S. enterica* serotypes commonly associated with salmonellosis in different temperatures, under laboratory conditions using crystal violet staining and CFU count. We have also compared the effectiveness of antibiotics, disinfectant and bacteriophages in eradication of biofilms formed by those serotypes under different growth conditions. Moreover, we have analysed the effectiveness of phages and antibiotics against *S. enterica* in multi-species biofilm in order to compare therapeutic potential of phage therapy as an alternative to antibiotics. We have observed that bacteriophages tended to be equally effective as antibiotics in eradication of *S. enterica* biofilms formed under laboratory conditions. However, we have noticed that reapplying phages on previously treated biofilm did not cause its further decomposition. Therefore more research need to be conducted in order to evaluate the potential of phages as an alternative treatment of *Salmonella*-derived biofilms.

Biography:

Katarzyna Kosznik-Kwaśnicka, MSc graduated from University of Gdańsk with a master's degree in biology, specialisation: molecular biology in 2013. From 2013 to 2017 took part in the research regarding the evolution of bacteriophages. Took up PhD studies at the Institute of Biochemistry and Biophysics, Polish Academy of Sciences in October 2017 on the project focusing on comparison of effectiveness of phage preparations and antibiotics in eradication of *Salmonella enterica under* laboratory conditions and on experimental bird model.