

Health Microbiology and Biotechnology

P-203 - SCREENING OF ANTIMICROBIAL ACTIVITY OF THE EXOPOLYSACCHARIDE OF PORPHYRIDIVM CRUENTUM

Helena Vasconcelos¹; Manuela Pintado¹; Rui Morais¹

1 - Universidade Católica Portuguesa, CBQF - Centro de Biotecnologia e Química Fina—Laboratório Associado, Escola Superior de Biotecnologia

Background

Porphyridium sp. is a microalgae that produces and excretes a sulphated polysaccharide, the exopolysaccharide (EPS), into the culture medium. It is known that polysaccharides may have biological activity as anti-inflammatory, antibacterial and antiviral.

The aim of this work was to evaluate the biological activity of EPS. The antimicrobial activity of EPS was tested against 14 microbial strains. Several tests were carried out, namely bacterial antibacterial, antifungal and antibiofilm capacity. [1, 2].

Method

EPS was tested at concentrations from 0.5% to 4%, in order to evaluate the anti-bacterial activity against several microorganisms, namely *Escherichia coli*, *Bacillus cereus*, *Salmonella enteritidis*, *Listeria innocua*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* methicillin-resistant (MRSA), *Staphylococcus aureus* (MSSA), *Candida albicans*, *Malassezia furfur*, *Malassezia inova* and *Malassezia sympodialis*.

To test the antifungal activity, *Microsporum canis* and *Tricophyton rubrum* were used. These microorganisms were cultured in a medium selective for dermatophytes for 14 days at 30 ° C. In order to test the anti-bacterial and antifungal activity of EPS, the plaque microdilution method was used at minimum inhibitory concentrations (MIC).

Results & Conclusions

The results obtained suggest that the EPS of *Porphyridium cruentum* has potential to be used as a natural bacteriostatic. However, further microbiological studies will be needed to understand the mechanism of action.

It was observed that at the concentration of 4%, EPS exerted a greater inhibitory activity in the 24 hours of incubation, although not very important for the majority of the microorganisms, reaching a maximum of 11% for MRSA, followed by two Gram negative, *S. enteritidis* (9%) and *E. coli* (7%) and fungus *C. albicans* (6%).

Pseudomonas aeruginosa did not show any inhibition in any medium in the presence of EPS. It is important to note that as the concentration of EPS decreases the percentage of inhibition of *S. aureus* increases. 0.5% EPS poorly inhibited *S. enteritidis*, *E. coli* and *B. cereus*.

The results obtained suggest that the EPS of *Porphyridium cruentum* has potential to be used as a natural bacteriostatic.

References & Acknowledgments

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