

The Antimicrobial Activity of Crude Extract of Pyocyanin from a Marine Isolate of *Pseudomonas sp.* against Clinical Strain of *Staphylococcus aureus*

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Pyocyanin is a water-soluble blue-green, phenazine pigment synthesized by different strains of *Pseudomonas aeruginosa*. It has a powerful inhibitory effect on the bacterial growth and/or biofilm forming ability of the numerous clinically important pathogenic bacterial isolates. Thus, it is also a valuable addition to the existing antimicrobial drugs which can be potentially used as an antimicrobial compound against bacterial biofilm formation. This study aims to determine the antibacterial activity of crude extract of pyocyanin pigment obtained from a marine isolate of *Pseudomonas sp.* cultures against the clinical strain of *Staphylococcus aureus* NCTC6571. The crude pigment was extracted from four days old cultures of *P. aeruginosa* grown in nutrient broth using liquid-liquid extraction with Chloroform: methanol (2:1 (v/v)). The chloroform layer containing pyocyanin blue pigment was collected and concentrated using a roto-evaporator. The antimicrobial activity of crude pigment against *S. aureus* NCTC6571 was determined using the Kirby-Bauer Disk Diffusion assay in Muller Hinton Agar (MHA) plates. Clinical cultures were grown in the presence of pyocyanin-impregnated filter paper disks (7 mm) in MHA overnight at 37 °C. The assay was performed thrice independently. The sharply marinated circle of bacterial growth was observed with *S. aureus* NCTC6571. The diameter of the inhibition zones against *S. aureus* was in the range of 15.5±1.1-16.3±1.2. Further studies are currently in progress to identify minimum inhibitory concentration (MIC) and susceptibility range using purified pyocyanin extract against *S. aureus* NCTC6571. Also, scaling up of pigment production using a low-cost submerged fermentation technique is currently in progress.

Keywords: *Staphylococcus aureus*, antimicrobial activity of pyocyanin, marine isolate of *Pseudomonas sp.*