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Targeting biofilm inhibition in healthcare associated infections using macrocycle isolated from novel *Streptomyces* sp.**Shaminder Singh**

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Biofilms are the extracellular matrix made of microorganisms causing infectious diseases. Bacterial biofilms are generally associated with nosocomial infections and are responsible for antimicrobial drug resistance owing to their “shielding” character. Hence, targeting biofilm inhibition is a rational approach to design anti-virulence compounds against pathogenic strains. In this context screening of several soil isolates against primary biosensor organism *Chromobacterium violaceum* was performed which resulted in identification of novel *Streptomyces* sp. producing bioactive metabolites with anti-virulence activity. Isolation and purification of active compound was done using reverse phase HPLC followed by its spectroscopic characterization. The collected spectroscopic data supports the presence of macrocycles based organic compound in the active fraction. This isolated purified compound was tested for its anti-virulence activity against *Pseudomonas aeruginosa* PA01 by carrying out lasB-gfp based bioassay. Anti-biofilm activity of the isolated macro-cycle was also tested on the biofilms of *Pseudomonas aeruginosa* PA01 which were visualized using confocal microscopy. It is observed that there were numerous regions of biofilm clearance in test samples as compared to control in biofilms slides which clearly indicate the anti-biofilm activity of the isolated macro-cycle based organic compound. Hence, by employing biological screening protocol anti-virulence and anti-biofilm agent was identified which are active against the infections caused by *Chromobacterium violaceum* and *Pseudomonas aeruginosa*.

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