

Antimicrobial effect of phenazines produced by *Pseudomonas aeruginosa* isolated from saline soil of Mina River, Algeria

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Abstract

Several strains of environmental *Pseudomonas aeruginosa* have been used in biotechnology to produce beneficial metabolites in medicine and agriculture. Many secondary metabolites are secreted throughout their growth where phenazines are one among the most known stronger metabolites. The phenazines are antimicrobial substances inhibiting a wide range of pathogenic bacteria. In order to exploit the antimicrobial effect of *P. aeruginosa* and its phenazines we do isolate the studied bacteria from saline soil collected from Mina river region (Relizane, Algeria). Ten isolates belonged to *Pseudomonas* were selected by an antagonistic test, one of isolates was identified as *P. aeruginosa* and selected for phenazines production. Phenazines were produced using King A broth medium, extracted by ethyl acetate and purified by silica gel chromatography. The antimicrobial activity of crude extract containing phenazines was evaluated by the disc diffusion method against a number of pathogen microorganisms and the minimal inhibitory concentrations (MIC) were determined. The results indicated that the crude phenazines solution was effective against *Escherichia coli*, *Staphylococcus aureus*, *Bacillus cereus*, *Shigella sonnei* and *Candida albicans*. The characterization of purified phenazines extract by HPLC showed a peak similar to the standard. The results of this study will contribute in the identification of the potential of phenazines naturally-occurring substances as antimicrobial agents.

Keywords : Antimicrobial activity; *Pseudomonas aeruginosa*, Phenazines