

P0327

Poster Session I

New therapeutic alternatives

ISOLATION OF NEW SPECIES AND SCREENING FOR NEW ANTIMICROBIAL COMPOUNDS IN GRAM POSITIVE BACTERIA ISOLATED FROM HYPERSALINE ENVIRONMENTS IN NORTH-EASTERN ALGERIA

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Objective: Antimicrobial resistance has become one of the most serious public health concerns worldwide, Hence, it is necessary to identify new efficient bioactive molecules to overcome this important problem. Members of the *Bacillus* and *Paenibacillus* genus are characterized by their ability to produce several antibiotics.

The aim of this research was to isolate new species and to screen for the presence of new compounds with antimicrobial activities from *Bacillus* and *Paenibacillus* isolates.

Methods: Hundred and fifty seven *Bacillus* and *Paenibacillus* strains were isolated from soil and sediments of the hypersaline lake of Mzouri in Eastern Algeria. Firstly the strains were identified on the basis of their 16S rRNA sequences, subsequently the screening for the antimicrobial activity of *Bacillus* and *Paenibacillus* isolates was done using cross streak method on Mueller-Hinton medium against Gram negative, Gram positive bacteria and *Candida albicans*.

Results: analysis of 16S rRNA sequences allowed us to identify a new species of *Bacillus* genus, its genome has been sequenced and ongoing analysis. Among the 147 *Bacillus* and 10 *Paenibacillus* strains screened, 60 strains (38.21%) were bioactive, out of which 40 % of them (24 strains) exhibited activity against Gram positive bacteria with efficient activity against methicillin-resistant *Staphylococcus aureus* (MRSA) and 6 out of the 24 strains (10%) were effective against vancomycin-resistant *Enterococcus faecium*. Four strains were active against Gram-negative bacteria with some showing activity against *Klebsiella pneumoniae* resistant to both imipenem and colistin. Lastly, 68.33 % (41 strains) revealed significant antifungal activity against *Candida albicans*.

Conclusion: our study showed that hypersaline environments are an important source of new species and new producers of efficient antibacterial metabolites that need to be more explored.