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Letter to the Editor

In vitro antimicrobial activity of actinobacteria from South East Coast of Tamil Nadu, India

Sir,

The emerging multidrug resistance pathogenic microbes are emphasizing the need of newer antimicrobials (Baltz, 2007). Actinobacteria are the most economically valuable prokaryotes which are well known to produce chemically diverse metabolites with wide range of biological activities (Balagurunathan et al., 2010). Now a days, bioprospecting of marine derived actinobacteria, when compared to those from terrestrial sources, results in the isolation of novel antimicrobials. With this view, we attempted to study the *in vitro* antimicrobial activity of actinobacteria from South East coast of India.

Bioactive compounds from 50 actinobacterial strains isolated from Pitchavaram (P) and Parangipettai mangrove (PM) and estuarine (PE) sediments, Southeast coast of Tamil Nadu, were produced by agar surface fermentation using yeast extract malt extract agar. After 10 days of incubation all the actinobacterial cultures were screened for antimicrobial activity against *Staphylococcus aureus*, *Bacillus cereus*, *Escherichia coli*, *Pseudomonas aeruginosa* and *Klebsiella pneumoniae* by agar plug method (Radhakrishnan et al., 2014). Crude bioactive compounds from two potential strains PE7 and PM 33 were produced by submerged and agar surface fermentation and tested for every 24 hours against *S. aureus* till 12th day of fermentation (Gopikrishnan et al., 2013).

Among 50 actinobacterial strains, actinobacteria from Parangipettai mangrove and estuarine ecosystems were showed promising activity when compared to actinobacteria isolated from Pitchavaram ecosystem (Figure 1). About 40 strains were active only against Gram-

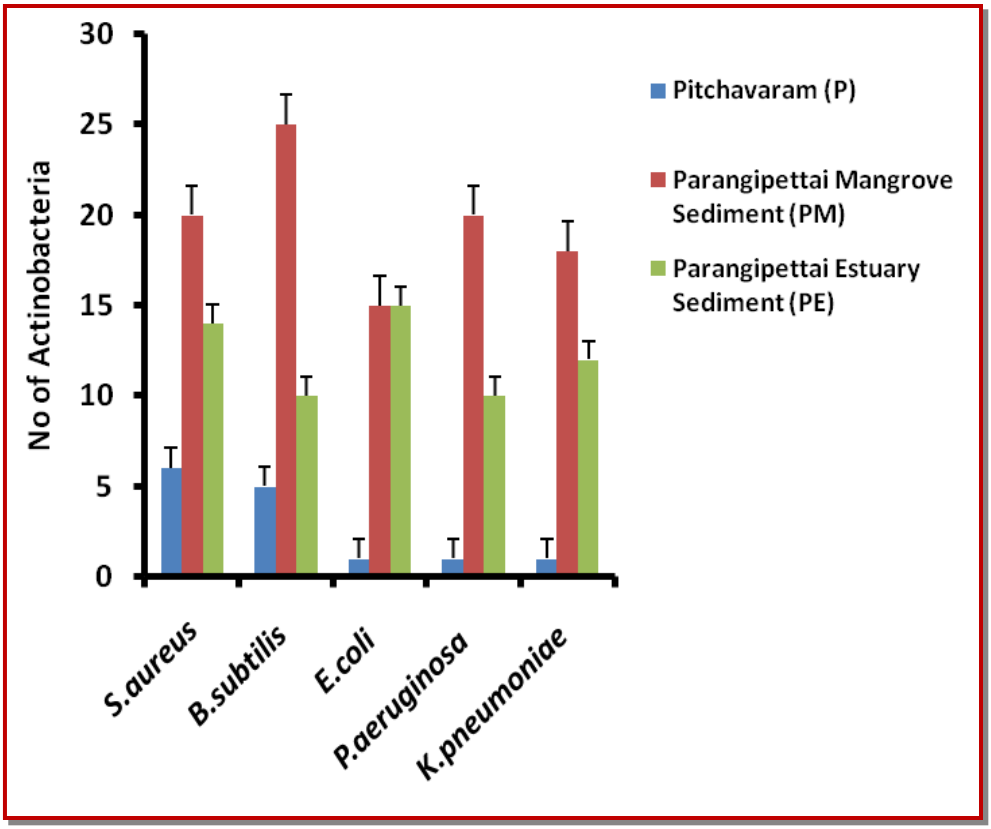

Figure 1. Number of antagonistic actinobacteria isolated from different marine ecosytems

Table I

Antagonistic activity of potential actinobacterial strains PM 33 and PE7

Actinobacterial strains	Clinical pathogens (Zone of inhibition in mm)				
	S. aureus	*B. subtilis*	*E. coli*	*P. aeruginosa*	*K. pneumoniae*
Strain PM33	15 ± 0.58	16 ± 0.58	14 ± 0.00	16 ± 0.58	14 ± 0.00
Strain PE7	15 ± 0.58	17 ± 0.00	12 ± 0.58	16 ± 0.58	13 ± 0.58

positive bacteria, 18 strains were active only against Gram-negative bacteria whereas 18 strains showed broad spectrum activity against both Gram-positive and Gram-negative bacteria.

Two actinobacterial strains such as PM33 and PE7 from Parangipettai mangrove rhizosphere and estuarine ecosystem, respectively, were showed broad spectrum activity against all the clinical pathogens tested. When compared with liquid fermentation, solid state fermentation showed good growth and promising activity till end of 12th day. In the present study, both the potential actinobacterial strains produced the bioactive metabolites very earlier in the YEME agar (Table I). Further production and isolation of active principles from the actinobacterial strains PM33 and PE7 will be worth pursuing.

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