

FULL TEXT LINKS



J Basic Microbiol. 2023 Aug;63(8):868-876. doi: 10.1002/jobm.202300051. Epub 2023 May 1.

Exploration of fish gut-associated actinobacteria for its antifouling activity

Ramesh K Ashwin ¹, Arunachalam Aruna ¹, Jisha Koyyodan ², Manigundan Kaari ³,
Gopikrishnan Venugopal ³, Radhakrishnan Manikkam ³

Affiliations

PMID: 37127854 DOI: [10.1002/jobm.202300051](https://doi.org/10.1002/jobm.202300051)

Abstract

An attempt has been made to screen the fish gut-associated actinobacterial cultures for antifouling compounds. Fifteen morphologically distinct bacterial cultures were recovered from the biofouling samples scraped from the boat surfaces and other maritime structures in the Kovalam beach (Lat. 12.7870°N; Long. 80.2504°E) coastal areas in Tamil Nadu, India. All the bacterial isolates were identified at generic level from which two isolates namely KB6 and KB7 as *Staphylococcus* sp. were found the exhibit strong biofilm formation. Four actinobacterial strains viz., IM20, PYA9, F8, and SQA4 were evaluated for inhibitory properties against biofouling bacteria using the agar plug method. Strain IM20 which strongly inhibited the biofouling bacteria was chosen as prospective strain for further studies. When compared to submerged fermentation, IM20 produced a high amount of antifouling chemicals on the agar surface fermentation. Among the solvents tested, better extraction of antifouling compounds was seen in ethyl acetate extract. Antifouling compound production by the strain IM20 was found to be influenced by a number of variables such as glucose, fructose, glutamine, malt extract, pH 7 and 9, temperature 30 and 40 °C and NaCl at 2.5% and 5% concentrations. Gas chromatography-mass spectrometry (GC-MS) analysis of the strain IM20 extract revealed the presence of pyrrolo (1,2-a)pyrazine-1,4-dione, hexahydro) in significant amount. In the present study, the fish gut-associated *Streptomyces* sp. IM20 was identified as an unusual and newly added source for the isolation of antifouling compounds.

Keywords: *Streptomyces*; actinobacteria; biofouling; extraction; fish gut.

© 2023 Wiley-VCH GmbH.

[PubMed Disclaimer](#)

Related information

[MedGen](#)

[PubChem Compound \(MeSH Keyword\)](#)

LinkOut - more resources

Full Text Sources

[Wiley](#)

Research Materials

[NCI CPTC Antibody Characterization Program](#)

Miscellaneous

