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# Marine Microorganisms as Potential Source of Quorum-Sensing Inhibitory Compounds

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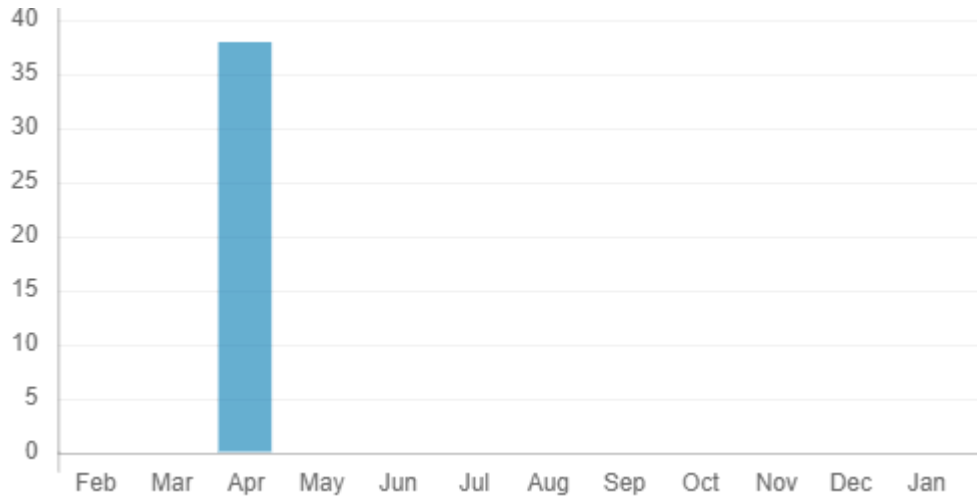
**Keywords:** Antimicrobial Resistance, Biofilm Inhibition, Pseudomonas Aeruginosa Infection, Quorum Sensing, Quorum Sensing Inhibition, Violacein Inhibition

## Abstract

*Antibiotics are extensively utilized globally, and the rate of antibiotic resistance is increasing more rapidly than ever. Since the introduction of antibiotics, the overuse of antibiotics caused selection pressure, and almost all pathogenic bacteria have developed resistance against commonly used antibiotics, which is particularly known as antimicrobial resistance (AMR). It has proven challenging to combat and resolve the issue of microbial resistance. A growing number of microorganisms have developed different resistance mechanisms and turned into "superbugs". The identification of quorum-sensing systems has given researchers a new hope for understanding drug resistance processes. The quorum-sensing system controls a number of cellular functions, including the expression of pathogenic genes, the synthesis of toxins, and the synthesis of extracellular polysaccharides. To targeting QS systems marine bacterial samples were collected by different coastal sites of Gujarat, like Mandvi, Dwarka and Diu. A total of 52 marine isolates were obtained, out of which 16 were associated with various marine macro-organisms like sponges and algae, whereas 36 were free-living. The study has done by screening those marine isolates shown potential to inhibiting the quorum sensing molecule by co culture study against Chromobacter violaceium, followed by growth inhibition assay. The G14 and G82 isolate shows highest degradation of N-acyl homoserine lactone by*

*AHL study. The QSI compounds were extracted using ethyl acetate extraction method. Biofilm inhibition assay with Pseudomonas aeruginosa shows potent inhibitory effect of extract. These results prove that marine microorganism have potential to inhibits quorum sensing and virulence factors regulated by Quorum Sensing phenomenon.*

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## Keywords



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