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Isolation and characterization of amicoumacins produced by *Bacillus pumilus* 35R COPS isolated from *Acartia tonsa* copepod antagonistic agents against pathogenic strains

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A marine bacterium named 35R COPS was isolated from *Acartia tonsa* copepod eggs. The isolate was identified as *Bacillus pumilus* by matrix-assisted laser desorption/ionization-time of flight-mass spectrometry (MALDI-TOF-MS) and by amplification and sequencing of the 16S rRNA gene followed by a phylogenetic analysis. The *B. pumilus* 35R COPS is highly inhibitory against several pathogens, including *Vibrio angularum*, *Vibrio alginolyticus* and *Staphylococcus aureus* (MRSA). The antimicrobial activity of the 35R COPS strain is mainly related to the production of several compounds of the amicoumacin family such as amicoumacin A, amicoumacin B, phosphoamicoumacin A and phosphoamicoumacin B. The Amicoumacin structures were elucidated using their specific UV absorption profiles and their MS/MS fragmentation patterns. Genomic sequencing of the *B. pumilus* 35R COPS strain associated with its bioinformatics analysis show the existence of a gene cluster coding for amicoumacin. This bacterium may be a promising candidate strain as probiotic in aquaculture and as agents for the prevention of various animals and plant infections. The assessment of the cellular toxicity are ongoing.

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