



## Study on the Influence of Temperature and pH on the Secondary Metabolism of *Vibrio coralliilyticus* and *Vibrio shiloi*

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Coral reefs are among the most complex, diverse, and productive ecosystems on the planet, home to approximately 25% of all marine species. They play a significant economic role, providing goods and services through activities such as fishing, tourism, and coastal protection. However, the survival of coral reefs is under threat due to the decline in reef cover caused by changes in environmental conditions (rising ocean temperatures, sea level rise, deoxygenation, and ocean acidification) and human activities (industrialization, urbanization, agriculture, pollution, and overfishing). These factors place stress on the ecosystem and accelerate processes such as coral bleaching, making corals more susceptible to pathogen infections and mortality. These diseases include bacterial infections. Although the mechanisms of these infections are not yet fully understood, species of the bacterial genus *Vibrio* are considered major agents causing temperature-related diseases in marine organisms. The aim of this study was to investigate the influence of temperature and pH on the secondary metabolism of two species of the genus *Vibrio*, *Vibrio coralliilyticus* and *Vibrio shiloi*, in order to relate it to coral pathogenesis. The *V. coralliilyticus* and *V. shiloi* strains were cultivated in SYP liquid medium (Starch, Yeast, Peptone) at temperatures of 22, 25, and 28°C and at pH 5 and 7, in triplicate, and maintained under agitation for 10 days. An extraction was performed with ethyl acetate, and the organic phase was concentrated using a rotary evaporator to obtain the crude extracts. The samples were analyzed by HPLC using a Phenomenex Luna PhenylHexyl column, with an elution system of acetonitrile and water in a 10–100% acetonitrile gradient. The statistical analysis of the chromatographic data was conducted using the MetaboAnalyst 6.0 platform, based on retention times and peak areas of the chromatographic signals. The analysis of the chromatographic profiles of the crude extracts of *V. coralliilyticus* and *V. shiloi* revealed that changes in temperature and pH in the culture medium can influence the secondary metabolism of both species, potentially affecting the process of coral pathogenesis. The authors thank their institutions for support and acknowledge the financial assistance provided by CAPES, CNPq, and FAPERJ.

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