Glowing Warnings: Using Aliivibrio fischeri for Toxin Detection

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Aliivibrio fischeri is a single-celled, gram-negative, rod-shaped bacterium that lives within the ocean. When in healthy waters, its cell membrane quorum senses with other bacterium near it to light up within the waters. After our research, we have concluded that the Aliivibrio fischeri should light up when exposed to certain chemical limits, around .2-.3% chemical to water concentration for each substance. Pushing beyond this limit should cause the Aliivibrio fischeri to not quorum sense and not produce bioluminescence. Our purpose for this research and experiment is twofold: to test and see if Aliivibrio fischeri is tolerant to certain toxins and to what limit, but also to see if Aliivibrio fischeri is a good and quick indicator of toxins in saltwater. Based on our results, Aliivibrio fischeri is tolerant to specific toxins, allowing it to go beyond the .2-.3% benchmark, and sensitive to others.

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