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A novel sulfate-reducing bacteria detection method based on inhibition of cysteine protease activity

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Abstract

Sulfate-reducing bacteria (SRB) have been extensively studied in corrosion and environmental science. However, fast enumeration of SRB population is still a difficult task. This work presents a novel specific SRB detection method based on inhibition of cysteine protease activity. The hydrolytic activity of cysteine protease was inhibited by taking advantage of sulfide, the characteristic metabolic product of SRB, to attack active cysteine thiol group in cysteine protease catalytic sites. The active thiol *S*-sulfhydration process could be used for SRB detection, since the amount of sulfide accumulated in culture medium was highly related with initial

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