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## INVESTIGATION OF SULFUR COMPOUNDS IN SELECTED STAGNANT WATER BODIES

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Sulfur compounds, primarily in the form of sulfides ( $S^{2-}$ ), sulfites ( $SO_3^{2-}$ ) and sulfates ( $SO_4^{2-}$ ) have been neglected but has a strong effect upon water quality. The dark colour sediments and strong unpleasant ordours often indicate the  $S^{2-}$  contamination in aquatic bodies. To the best of our knowledge, no attempt has been made to investigate these compounds and to assess their contribution to the degradation of water quality. Both the bacteria and dissolved oxygen (DO) are playing leading roles in determining the fate of S containing compounds in aquatic systems.

In this investigation it was intended to study the possible relationships between sulfur species and DO. Four urban stagnant water bodies effected by improper sewage disposal, industrial waste, wet and dry deposition of atmospheric  $SO_4^{2-}$  were investigated along with a prawn farm and two coconut husk soaking pits inherited with S compounds. These water bodies indicated the emission of volatile S compounds. These water bodies indicated the emission of volatile S compounds from their characteristic rotten egg smell.

Under this study  $S^{2-}$ ,  $SO_3^{2-}$  and  $SO_4^{2-}$  levels were monitored along with DO, pH and temperature to investigate the possible correlation method introduced by Pawlak and Pawlak (1999) was employed in determination of  $S^{2-}$  levels while all other parameters were measured by employing standard methods.

Based on the results obtained, only  $S^{2-}$  shows a significant correlation with DO under ambient conditions. Finally, measured dissolved  $S^{2-}$  levels were utilized to determine the possible  $H_2S$  emission levels. Calculations have shown that each of the water body is emitting gaseous  $H_2S$  and in most cases, emission levels are greater than the odour thresholds accounting for the unpleasant smell near these stagnant water bodies.

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