D-15 : LABORATORY SIMULATIONS TO PRODUCE SO_{42-} SOLUTIONS USING PYRITE AND MUTHURAJAWELA PEAT

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Muthurajawela peat deposit is flooded by sea water arriving through the canal connecting the deposit to the ocean. As a result of such waters and rain-fed waters, the deposit is covered for the most part by water. Field studies have indicated appreciable SO_{42-} concentrations (from approx. 700 to 9000 mg L-) and pH varying from 2 to 5.5. The higher sulphate values and lower pH are recorded from solutions intimately associated with peat. In earlier studies, the acidity was attributed to the presence of pyrite mineralization in some layers of the peat deposit.

In the present study to simulate the Muthurajawela environment in the laboratory, peat samples collected from Muthurajawela were dried and mixed with powdered ($\sim$100 mesh) relatively pure pyrite grains from Bogala. The mixture was left submerged in water for 6 weeks. The SO_{42-} concentration and pH of the peat-associated water were monitored during this period. The experiments have shown that the SO42- concentrations in peat-associated water showed nearly twofold increases whereas pH showed decreasing values. These preliminary laboratory results tend to confirm the earlier field observations that pyrite has played a significant role in elevating the $^{SO}{}_{42-}$ content and decreasing the pH of the peat-associated waters of the Muthurajawela environment.

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