

Title: [Morphological changes in the gills of *Heteropneustes fossilis* \(Bloch\) exposed to coal mining effluent water](#)

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Abstract: Ultrastructural changes in the gills of cat fish *Heteropneustes fossilis* exposed to coal mining effluent water collected from Rymbai river in Jaintia hills, Meghalaya, India was investigated under scanning electron microscopy (SEM). The pH of effluent water in the river was significantly low (2.5-3.0) due to coal mining activity in the adjacent areas. The dissolved oxygen (DO) was 7.7 mg l⁻¹ and conductivity 0.93 mS. Morphological changes like dissociation of the epithelium (E) of branchial arches and gill filaments, hypertrophy and disorientation in the array of lamellae were observed in the treated fish, leading to fish death. The primary and secondary gill lamellae (PL and SL) exhibited fusion, distortion and loss of alignment. Some of the gill rakers showed necrosis at certain places. The morphological features of the gills as revealed through SEM were highly deteriorated when compared to control.