**Abstract**

The pools, ponds, creeks and also the torrential streams often either dry out during summer or their homes muddy, highly hypoxic and hypercarpic. Under such ecologically adverse conditions therea very interesting group of fish which have a bimodal gas exchange mechanism where the air breathing organ exchanges with the air, while the gill and/or skin exchanges gases with water. The effect of arious pollutants on the respiratory physiology of fishes havebeen investigated in recent years by several workers (Hughes, 1975; Waiwood and Johnson, 1974; Kawatshi and McDonald, 1974; Lunn*et al*., 1976, Singh and Singh, 1979). The intimate contact of gill with waterborne pollutants may lead to alterations in the respiratory surface area (Singh and Singh, 1979) and in turn lowering the diffusing capacity of gills. At low oxygen levels these species reduce gill ventilation and rely primarily upon air-breathing (Graham *et al.,* 1978). The oxygen consumption of *Channapunctatus* has been related with respiratory surface (Hakim *et al*, 1978), bimodal oxygen uptake in relation to body weight and season (Hakim *et al*., 1983; Ghosh*et al*., 1990), circadian rhythm (Munshi*et al*., 1979) and development of air-breathing organ (Singh *et al*., 1982). Variations in oxygen consumption on exposure to toxicants are supposed to be due to filtration rate of ciliary activity. Therefore filtration rate affected by the effluents change the level of gill irritation in turn affecting the oxygen uptake. High concentrations of toxic substance have been reported to reduce filtration efficiencies in fishes. For water-breathing fish, toxicity of a wide range of substances increases as dissolved oxygen decreases (Lloyd. 1961). Lloyd (1961) proposed that this increase in toxicity is due to an increased rate of ventilation in hypoxic water. But in bimodal species, the hypoxic condition causes a decrease in toxicity. At low O levels, these species reduce gill ventilation and rely primarily upon air-breathing. (Grahamd., 1978). In the presence of a toxin there was an increased metabolic rate (for a short while) in fishes. It is evident that sewage and industrial effluents, if present in higher amounts, can cause mass mortality in Pande and Das. 1983). The rate of oxygen consumption in fishes has been considered as an indication of metabolism (Fry, 1971; Lal*et al*., 1984).It is evident that quantity the aquatic, aerial and bimodal oxygen uptake of differing fish weights at variousintervals10 analyse the variations in the circadian rhythm of bimodal respiration after sewage wasteexposure, to determine the effectermine the effect of sewage exposure on the aerial respiration.