REVIEW OF LITERATURE

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The riverine ecosystem is well studied and reported by national and international scientists. Such work is more directed to the analysis of ecosystem for abiotic and biotic parameters separately. Due to human activities of various types and grades, the natural aquatic ecosystems, mainly river, are subjected to several alterations in their natural status or leading to degradation. Literature survey reports the documentation of physico-chemical properties of river ecosystem especially of the quality of water. The biotic parameter is dealt with separately and to a lower scale comparatively. The analysis of biotic component is also distinctly reported for flora and fauna of lotic ecosystem, but with no co-relation between them. Looking to certain observations done over here from the documented research done by Indian scientists in specific and International work in general, we planned to fill up this lacuna by presenting the work which is based on natural and human influenced river system.. Moreover, in our study we have made an attempt to bring this abiotic and biotic component closer for their inter-related documentation.

Abiotic factors in the form of dissolved gases, salts etc. in the water, responsible for the state of water quality has been reported by several workers (Venkateshwrlu and Jayanti, 1968; Krishnamurty 1970; Ragothaman and Reddy, 1982; Barodawala et. al., 1992). pH of water is important for many chemical and biochemical reaction taking place at a specific pH or with in a very narrow range (Gautam, 1994; Barodawala et al., 1992; Khatavkar and Trivedi, 1992). Along the course of river flow, during different seasons, due to the usage of water and inflow of waste water the pH alters (Nautiyal 1984; Gautam and Satti et. al, 1989; Zafar 1964). However, the pH value of river water of India ranges in neutral to alkaline state only (Singh et al 1985; Sharma et. al, 1981). Electrical conductivity of water is due to dissolved salts in it. It normally remains low in natural waters but represents high value for contaminated water. The seasonal variation is also reported by some workers (Gautam and Satti et. al, 1983; Gautam, 1994).

As the water runs downstream, in its course due to soil erosion, mixing of various salts and solids, inflow of used water, effluents etc. and finally tidal influence the quality and quantity of solids and salts varies (Patel et. al., 1992; Ray and David 1966; Joshi and Bisht, 1993: Shivkumar et. al., 1990; Thamil Chelvan, 1996)

During runoff of water downstream, total solids which remain undissolved imparts turbidity to water. In such condition optical parameter of water changes. To this change an addition in optical state is observed due to aggregation of planktonic matter (Joshi and Bisht, 1993). Several inorganic salts get dissolved in the water. The availability of such salt in the water of different quantity is the indication of variation in quality parameter as well as influence to natural river water stream by effluent sewage or agriculture run off etc. (Perkins, 1967; Rana and Jameson, 1996; Bharati, 1990). Dissolved gaseous condition of the river water is subjected to variation due to several factors. Oxygen is in varied forms play an important role in water quality status. Also equilibrium of oxygen and carbon dioxide in dissolved state sustain biota of river water. The BOD, COD, DO and CO_2 in their variable levels of concentration indicates the chemical and biological status of the river (Trivedi et. al, Gautam, 1989, 1994; Palaria et. al. 1985, 1988; Sharma, 1987; Riazuddin et. al., 1988; Joshi and Bisht, 1993). As the river water is used for many human activities like their own needs, irrigation of agriculture fields, industrial needs etc. the change in its quality is evident. Due to the influence of pesticides, insecticides and untreated industrial effluent several metal took their way to natural water system Such metals are heavily toxic to flora and

fauna of the rivers. It also affects the trophic status of the entire riverine ecosystem (Gautam, 1994).

Biotic component of the river consists of varieties of planktonic forms like phytoplankton and zooplankton, microscopic diatoms etc. Mainly the organic status of the river is sustained by such planktonic forms at large. Alongwith these plankton, flora in the form of hydrophytes-macrophytes are found in the river stream (Chauhan, 2004; Manoj, 1995). Several authors have reported relation between physico-chemical properties of river water and their influence on biotic component like algae, plankton, macro-invertebrate fauna and fishes (Bilgrami et. al., 1980; Blum, 1957; Chack et. at., 1949; Chackrabarty et. al., 1959; Manoj, 1993; Pahwa et. al., 1966; Ragothaman et. al., 1995). Seasonal variation and water floe dynamics play a major role in the distribution and abundance of plankton and faunal diversity (Patnaik et. al., 1990, CICFRI, 1993).