**Abstract**

Aquatic biodiversity is one of the most essential characteristics of an aquatic ecosystem for maintaining stability and a means of coping with any environmental change. The presence or absence of certain families of aquatic insects can indicate whether or not a particular body of water is healthy or polluted. Studying life cycles of aquatic insects and their relationships with other organisms and their own environment can give insight into many different areas of ecology, including population dynamics, competition and predator-prey interactions. An inventory was carried out to study the aquatic entomo-fauna, their diversity and distribution in the Singanallur lake of Coimbatore district for a period of four months from April to July 2014 from the three sampling sites of the lake. A total of 1633 aquatic insects were recorded. Insects belonging to the orders Hemiptera and Coleoptera showed higher species richness followed by those belonging to Odonata, Trichoptera and Ephemeroptera respectively. This study re-emphasized the potential of the Singanullur lake as an important area of biological diversity.