



Surface Water Quality and Associated Aquatic Insect Fauna under Different Land-Uses in Solan (District Solan), Himachal Pradesh

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Abstract: The common land uses of mid hills have resulted in significant variations in the physico- chemical properties of the surface water. The pH and EC of surface water ranged from 6.01 to 7.53 and 455.00 to 618.50 $\mu\text{S cm}^{-1}$, respectively. The TDS, BOD and COD ranged from 45.75 to 248.25 mg l^{-1} , 0.35 to 3.43 mg l^{-1} and 0.25 to 6.25 mg l^{-1} , respectively. The land use wise trend of these properties was Agriculture>Urban >Forest. The Cl^{-} and NO_3^{-} content of surface water ranged from 10.33 to 132.50 mg l^{-1} and 1.50 to 29.50 mg l^{-1} . The land use wise trend of these parameters was agriculture>Urban > Forest. The contents of Ca^{2+} and Mg^{2+} were ranged from 7.50 to 56.50 and 7.50 to 29.88 mg l^{-1} respectively. The study indicated that the common land uses in the mid hills of Solan district did not influence the surface water quality adversely and was within the acceptable limit as prescribed by WHO. The study further indicated that the agriculture land use tended to increase TDS, BOD, COD, Cl^{-} and NO_3^{-} content in surface water. The seasons of the year also influenced the physico-chemical properties of surface water. During rainy season all the parameters exhibited relatively higher values as compared to winter and summer months. The identification of aquatic insects in surface water up to family level indicated that in the region water is composed of 173 individuals m^{-2} falling under 10 families and six orders. The Land use wise aquatic insect recorded were 78, 62 and 33 individuals m^{-2} under forest, agriculture, and urban land uses, respectively. Forest land use registered maximum diversity of aquatic insect fauna as compared to other land use.

Key Words: Agriculture, BOD, COD, Forest, Seasons, Urban
