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Water quality assessment of Ranjit Sagar wetland (national wetland), Punjab, India

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The Ranjit Sagar wetland is situated on the Ravi River near Pathankot city, Punjab. This wetland falls into three states i.e., Punjab, Himachal Pradesh and Jammu & Kashmir and spreads over an area of 87.60 sq.km. Water samples were collected on monthly basis from June, 2012 to May, 2014 and brought to laboratory for further analysis. Range, mean and standard deviation of physico-chemical parameter were estimated i.e. Air Temperature (°C) 12-40 (26.51±7.33), Water Temperature (°C) 11.9-30.93 (22.97±6.68), Conductivity (µs/cm) 124-340 (214±64.09), Total dissolved solids (mg/l) 70-200 (138.27±44.49), Turbidity (NTU) 1.5-21.5 (8.14±7.68), Dissolved oxygen (mg/l) 6.9-8.7 (7.79±0.57), Carbon dioxide (mg/l) 2-10 (5.07±2.18), Hydrogen ion (pH) 7.2-9 (8.08±0.52), Total alkalinity (mg/l) 12-284 (111.70±73.65), Salinity (mg/l) 100-200 (127.27±45.58), Chloride (mg/l) 2.98-24.85 (13.63±6.34), Total Hardness (mg/l) 64-228 (112.88±48.36), Calcium(mg/l) 14.12-60.55 (26.86±11.57), Magnesium (mg/l) 1.3-25.4 (10.52±6.26), Phosphate (mg/l) 0.09-2.163 (0.34±0.51), Sulphates (mg/l) 0.50-3.90 (1.75±0.86), Nitrates (mg/l) 0.045-1.80 (0.31±0.48), Nitrites (mg/l) 0.01-0.24 (0.07±0.059) and Silicates (mg/l) 4-9.5 (6.73±1.67). All parameters were compared with standard values recommended by World Health Organization (WHO) and Indian Standard (IS) and it is noted that value of all parameter lies near permissible limits. The presence of nutrients likes sulphates, phosphates, nitrates, nitrites and silicates in sufficient quantities, which are helpful to enhance the growth of aquatic flora and fauna in the wetland. Resultantly, the wetland become more productive and can attract wide array of migratory birds during the winter season annually. The regular data collection about physico-chemical parameters is highly required for the sustainable development of wetland because these fragile ecosystems are degrading drastically due to anthropogenic activities.

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