



# Quantitative estimation of the phytoplankton community in Garmat-Ali River from Basrah, Iraq

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## Abstract

The aim of the present quantitative assessment of the phytoplankton community along the Garmat-Ali River and to establish its relationship with the physical and chemical factors based on the changes occurring in the aquatic environment in Basra Governorate, including the decreasing of fresh water, this is due to the low discharge of fresh water coming from the upstream countries, rise in temperatures due to global warming, increased salt concentrations and other factors. Four locations were chosen in the region: Al-Najibiya, Al-Mashhab, Al-Salal and Al-Nagara station. The samples were collected quarterly in 2022. The results of the environmental variables showed that the water temperature was ranging from 11.8 - 33.4 °C, salinity from 2.6 - 9.5 PSU, hydrogen ion concentration -pH- from 7.3-8.6, dissolved oxygen from 1.6-11.7mg/l. total dissolved solids from 2350-9871 ppm, turbidity from 1.39-76.8 NTU, reactive phosphate from 0.01-0.21 mg/l. reactive nitrate from 0.51-19.9mg/l. and chlorophyll-a- from 8.62-41.06mg/m<sup>3</sup>. Statistical analysis of the physical and chemical parameters was performed using SPSS statistics v.19 for one-way analysis of variance. Quantitative data showed that the total numbers of phytoplankton at all the study sites and in all seasons was 120120 cell/l. Al-Salal site showed the highest numerical density of 15,000 cell/l. in spring, while Al-Najibiya site

represent the lowest numerical density of 2,500 cell/l. in winter.  
**key words:** Phytoplankton, Garmat-Ali River, Basrah,  
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