

SUMMARY

The present study were carried out by a selection of three station on Tigris river, started from North of Aldour city to the south of Sammara (include) a distance of (35)km. The station were chosen according to it's location under the effects of waste either from Agricultural origin or domestic sewage. Samples were collected monthly for ten months started from January 2003 to October 2003. Seasonal variation of physical-chemical and biological parameter were investigated.

Among physical and chemical parameter which has been studied, Air, water temperature, PH, Conductivity, DO, BOD₅, Salinity, turbidity, total hardness, permanent hardness, magnesium hardness, chloride, alkalinity, Nitrit (NO₂) and phosphate.

Cyanobacteria are chosen for biological studies. The biological aspects include, Isolation, Identification of cyanobacteria, collected with water sample. These *SPP* of cyanobacteria grown in the laboratory after which some physiological aspects include such as, growth rate, protein, chlorophyll as well as the effects of extracts of some cyanobacteria were tested on many pathogenic gram(+) and gram(-) bacteria. Results has been shown that there are a great correlation between water temperatures and air temperatures, throughout the station investigated with temperature ranged from (12-44) °C where as water temperature ranged from (9-27)°C light intensity ranged from (2.5-4.5)×10³ lux. Electrical conductivity mesurment showed a range of (335-495)µs/cm. the results also showed that Tigris river was moderately alkaline with PH values range from (7.6-8.8). No critical value of DO were recorded during this study with range from (4-10) mg/L. then the BOD₅ mesurment did not show a high value except in some cases in station(2) in July.

Tigris river was considered as fresh water with range of salinity between (0.2-0.3g/L. while turbidity in crease in winter and spring specially during the rainy period, in range of (6.5-156)N.T.U where as hardness varied from fresh water to very hard, where the total hardness recorded range between (160-515)mg/L, while the permanent hardness recorded in arrange from (3-340)mg/L. the results also showed that chloride concentration full in a range of (12.3-33.7)mg/L. the total alkalinity of the studied stations were mostly due to the bicarbonate alkalinity the values were (97.5-220)mg/L.

The Nitrite (NO₂) concentration ranged from (0.301-4.01)µg/L. while phosphate concentration some time couldnot be detected due to very low concentration with a range of (N.D-3.103)µg/L. The biological aspects in this study revealed sixty five **SPP** of cyanobacteria were identified in this study, Those **SPP** are distributed among the three form of cyanobacteria, where the filmentes Heterocystes from 47.7% while filamenous-non-Heterocysteus and unicellular from 26.15%. **Westilopsis prolifica**, **Mastigocoleus testarum**, **Hyella Sp** & **Hapalosiphon-Sp**. This four **SPP** where the first time recorded in Iraq.

The results of the effects of extracts for (32)spp on pathogenic bacteria showed that the effects varied on different bacteria. Where extracts of **Anabaena Oryzae** affect on all type of Bacteria used in this study. Acomparasion between extract of **A.oryzae** and some antibiotic (Amoxycillin) on bacteria showed that they have similar effects except Amoxycillin did not effect pseudomonas.

U.V analysis of **A.oryzae** extract and Amoxycillin shown resemblenes of the peak maximum at wave length (λ max) (229)nm for **A. oryzae** and (λ max) (230)nm for Amoxycillin. For more confirmation of the result Hplc analysis for the two extracts showed that the retention time for **A. oryzae** extracts (7-93)min. and (8.0)min for Amoxycillin.

Growth rate, protein measurement and chlorophyll showed that increase with a time of incubation until (15) day, where protein concentration reached its maximum at (190) $\mu\text{g/ml}$ in the 14 th day incubation, while chlorophyll ranged from (0.64-3.08) mg/ml .

Statistical analysis showed that there are a little differences between station where as a significant differences noticed due to the time.