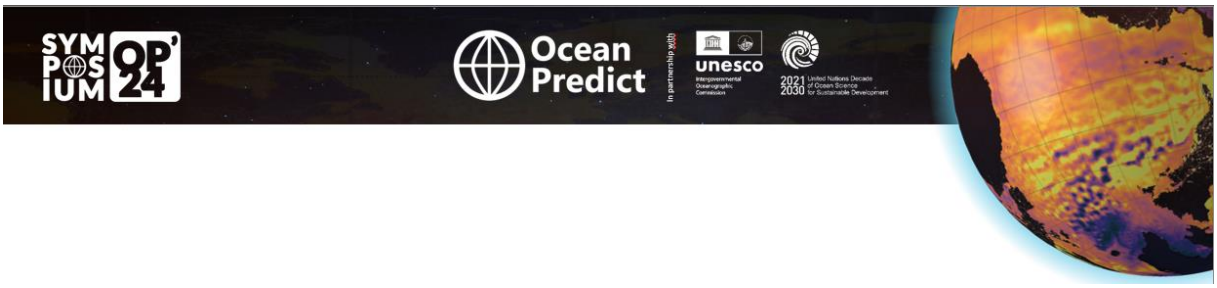

Phytoplankton biodiversity and physico-chemical factors of Atlantic Ocean in the Kribi coastal zone (Cameroon)

Cameroon coastline covers a distance of 402 km, occupying three of Regions including the South region (Kribi), Littoral (Douala) and the South-West (Limbe). Among these coastal cities, Kribis coast is a geostrategic area for the State of Cameroon and the focus of several touristic, construction and other industrial projects. These have exerted a lot of pressure on the ecosystems exposing, to heavy water pollution and considerable changes in the biological compartments including phytoplankton. The objectives were to assess the physico-chemical properties water and phytoplankton community structure. The sampling was carried out on monthly basis from February 2020 to February 2021, and data on water quality collected in situ using a multiparameter Laqua Horiba PC220 and HACH HQ Séries Multi and other variables determined analytically using Spectrophotometer Hach DR 3900 and standard procedures. The phytoplankton community was identified and counted under the microscope. Data was analyzed using R software version 4.1 and diversity indixes. Results indicated that, temperature, pH, conductivity, salinity, dissolved O2, nitrates and orthophosphates had mean values of 29.46±0.48°C; 8.53±0.11; 26.1±3.33 mS/cm; 15.5±2.13 mg/L; 89.56±1.13%; 1.61±0.47 mg/L; 1.86±0.29 mg/L respectively. A total of 273 species were identified grouped into 08 phyla, 12 classes, 46 orders and 73 families. Diatoms dominated this diversity by (192 species), followed by Dinoflagellates (59 species) and Flagellates (22 species). Calculation results of Menhinick and Shannon and Weaver index showed that, the conditions of the ecosystem studied are fairly similar and very close to the reference state and that, the phytoplankton population is therefore in equilibrium. Of these, harmful and toxic species were Coscinodiscus wailesi, Ceratium furca, Dinophysis caudata, Bacteriastrum hyalinum, Chaetoceros perivianus, Pseudosolenia calcar-avis, Prorocentrum micans, Odontella sinensis and Chaetoceros lorenzianus. Odontella aurita was the only useful species identified. Correlation analysis revealed that autotrophic Diatoms were more influenced by variations in water physico-chemical (Temperature, salinity, TDS, Conductivity, etc) factors than heterotrophic or autotrophic Dinoflagellates or those that alternate their trophies are very little influenced by these variations. The phytoplankton community, dominated by Diatoms, shows that the Kribi coast is not yet experiencing any major perturbances. However, regular monitoring of phytoplankton is very important to preserve this ecosystem.

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