Analysis of CO2 Fixation Through Photosynthesis in Waters of the South Coast of Brazil

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Since the Industrial Revolution,an increasing amount of CO2 has resulted in:the Global Warming,the ocean acidification that affects the metabolism of the microalgae.The objective of this work is to infer the CO2 fixation of different waters and to verify whether they present greater fixation in the form of biomass,in addition to comparing methods of determination of total alkalinity.In this work, the waters of the Fortaleza Lagoon,Imbé Estuary and Imbé beach, located on the south coast of Brazil,were studied.Two samplings were carried out in the winter of 2023,which showed differences between them,such as average weekly precipitation before collection (sample 1,carried out after an extra tropical cyclone, and sample 2 carried out after an intense week of heat),water temperature,wind direction,among other factors to characterize the waters.In addition to these factors,physical-chemical parameters were taken into account,such as salinity,pH and chlorophyll-a.In order to determine alkalinity,three methods were used:colorimetric,direct potentiometric and a most detailed potentiometric,all with adaptations so that they could be reproduced in the school.The colorimetric method with pH indicators and chloridric acid titration was inefficient for the natural waters.The most detailed potentiometric method with a pH meter and titration of chloridric acid with a pH variation of 0,1.The direct potentiometric method with the addition of 25mL of chloric acid. After analyzing the data obtained,it is possible to infer that in the sample 1,the Lagoon(fresh water),had the greatest potential for fixing CO2,in the second sample it was impossible to infer due to undominated parameters.The most detailed potentiometric methods better represent balance of the bicarbonate-carbonate–CO2 system.

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