A STUDY ON OCEAN ACIDIFICATION DUE TO CARBON DIOXIDE ALONG THE COAST OF VISAKHAPATNAM (URBAN)

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ABSTRACT

This paper focuses on the environmental impacts of carbon dioxide when it is above its permissible levels. Although it accounts for less than 1% of the atmospheric gases, when it's level increases in atmosphere leads to serious consequences like Global warming, Ocean acidification etc. A study on ocean acidification along the coast of Visakhapatnam (Urban) is done and the role of carbon dioxide is eluded out. The affinity of carbon dioxide towards Sea water is studied as the extent of decrease in pH when the known amount of CO_2 is generated into the samples of sea water, rain water, municipal water and distilled water- a comparative study. The dissolution of carbon dioxide causes the formation of carbonic acid which in turn releases hydrogen ions into medium along with carbonate and bi-carbonate ions. The increase in the concentration of hydronium ions causes decrease in pH. As, the atmospheric CO_2 is increasing, the CO_2 dissolution in Ocean is also increasing. The samples of sea water along the coast are collected and the decrease in the pH is studied. The effect of acid rain on ocean acidification along coast line is also studied. The increase in the dissolution of CO_2 in sea water causes decalcification disturbing the marine ecosystem. The concentration of carbonate and bicarbonate ions is studied and is compared with other references along the coast line and thus the process of decalcification is studied. The carbon dioxide is releasing at an alarming rate due to rapid industrialization and is a major pollutant in one of most developed cities like Visakhapatnam. The remedy is sequestration. Development is mandatory but it should not affect the harmony of environment.

KEYWORDS: Ocean Acidification, Affinity of CO_2, Decrease in pH, Carbonate and Bicarbonate Concentration