

A study on acid rains in a selected site from Matara District

Usually rainwater has a pH around 5.6 and when pH is lower than the above value, it is referred to as acid rain. Dissolution of pollutants such as H_2SO_4 , HNO_3 , HCOOH and CH_3COOH , makes rain water acidic and cause adverse effects. Atmosphere gets polluted due to pollutants released within the country and in neighboring countries and those located far away from the countries where acid rain occur.

Rain water samples were collected from an open area within the Ruhuna University premises from Sept. 1998 to May 1999 and pH, concentrations of SO_4^{2-} , NO_3^- , and Cl^- of them were measured by using a pH meter, turbidimeter, UV-Visible spectrophotometric method and by titrimetric methods respectively. PH of rainwater varied between 4.80 and 6.20 with an average of 5.55. During two inter-monsoons (IM_1 and IM_2) average acidity of rain water (pH4.8) occurred especially after dry periods, during inter-monsoons. Wind speed is very low during intermonsoons and a stable atmosphere tends to increase concentration of pollutants due to a cumulation. Further, rains occur mainly due to local disturbance within the atmosphere. Rain water during inter-monsoons, therefore may contain locally released pollutants. Normal acidity (5.60) during South-West Monsoon (SWM) could be mainly due to dissolution of CO_2 , as pollutants which cause acidity may get diluted due to heavy rains. Higher pH 95.88) observed during North-East Monsoon (NEM) could be due to the neutralization of acidity of rain water by ammonia which comes from various sources. It is necessary to carry out further studies to attain this conclusion. SO_4^{2-} and NO_3^- have not directly contributed much to acidity of rain water. A direct relationship between high (CT) and (H) was not seen. High CT concentrations may have been brought by sea spray. At present, there is no severe threat from acid rain to the study area and further studies are necessary to determine the sources, which cause higher acidity on certain occasions.