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Chemical Composition of Bulk Precipitation Chemistry around an Industrial Region, in Bangalore, Karnataka, India

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ABSTRACT

Acid rain is one of the major problems in the world. It is increasing day by day due to rapid urbanization and rapid industrialization. Recently, acid rain problems have also extended to Asia, because of significant increase in atmospheric emissions resulting from industries and automobiles. Therefore, it is important that acid-rain monitoring be conducted in urban and rural areas. If the pH of the rainwater is less than 5.6 then it is said to be Acid rain. Bulk precipitation samples were collected at Hebbal, an Industrial belt of Bangalore using bulk precipitator collectors. The samples were collected during south-west monsoon 2005 and 2006. Concentration of major cations and anions were determined and predominant ions were identified. Concentration of major cat ions (H, Ca^{2+}, Mg^{2+}, Na, K and NH_4^+ – N) and anions (Cl^-, SO_4^{2-}, HCO_3^-, NO_2^-, NO_3^- and PO_4^{3-} P) were determined. The study showed that the bulk precipitation at Hebbal industrial belt was towards acidic range. The statistical data clearly established that highly significant positive correlation coefficient between H^+ and SO_4^{2-} and also between H^+ and NO^{3-} indicating the decreasing trend of pH. The Ca^{2+} and NH_4 were acting as neutralizing ions. The decreasing trend of pH in the bulk precipitation may be attributed to local emissions of SO_2 and NOx from urban activities.