IDENTIFICATION OF MAJOR ACIDIC AND BASIC SPECIES IN RAIN WATER AT SEMENYIH DAM WATER RESOURCES AREA

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ABSTRACT

IDENTIFICATION OF MAJOR ACIDIC AND BASIC SPECIES IN RAINWATER AT SEMENYIH DAM WATER RESOURCES.

A comprehensive study on the composition of rainwater was carried out from July 2007 to September 2007 at Semenyih Dam Water Resources Area. This area is a semi urban with no agricultural activities within 15 km range, no industrial activities within 20 km and located 15 km heavy traffic. All samples were analyzed for pH, electrical conductivity and major ions (SO_4^{2-} , NO_3^- , Cl^- , Na^+ , Ca^{2+} , K^+ , NH_4^+ and Mg^{2+}). The rainwater was not considered as acidic because highest pH value is 6.9 and the lowest 6.7 with the average 6.82. SO_4^{2-} and NO_3^- were the main anions, while Na^+ and Ca^{2+} were the main cations. As conclusion, rainfall in this water resources area is currently not exposed to large quantity of anthropogenic acidic emissions.

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CHAPTER 1

INTRODUCTION

1.1 Background of study

A liquid acidity is a measure of its hydrogen ion concentration. It is expressed in pH value. On the pH scale, a value of less than 7 is acidic, pH 7 is neutral and a pH value greater than 7 is alkaline. Rainwater is naturally acidic due to the presence of CO_2 and other naturally produced acidic gases in our atmosphere. Rain measuring between 0 and 5 on the pH scale is acidic and therefore called "acid rain". The smaller number changes on the pH scale actually mean large changes in acidity. The pH of rainwater is measured either by using pH indicator strips and a pH color chart, or by using a pH meter.

"Acid rain" is a broad term used to describe several ways that acids fall out of the atmosphere. A more precise term for acid rain is acid deposition. Acid deposition is the transfer of strong acid forming substances from the atmosphere to the earth's surface. The composition of acid deposition includes sulfur dioxide and nitrogen oxide. This composition is very important in acid deposition formation. When we burn oil and coal in factories and in our automobiles, we release into the atmosphere millions