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Fulvic acids in rain waters of Georgia

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Fulvic acids (FA) are organic substances, which take an active part in complex formation processes and stipulate migration forms of heavy metals and radionuclides in hydrosphere. There are not any data about the concentrations of fulvic acids in atmospheric precipitations. For the first time we were determined the concentrations of fulvic acids in rain waters of Georgia,11 places, from where were taken samples of rain waters were evenly located in the whole territory of Georgia. The concentrations of FA were determined in 90 samples of rain waters. Fulvic acids were concentrated from rain waters by the coprecipitation method. Newly precipitated calcium carbonate was used as a collector. For isolation of fulvic acids from the concentrate was used the adsorption-chromotographic method. Charcoal was used as a sorbent. Concentrations of fulvic acids, isolated from atmospheric waters were determined by the spectrophotometric method. For the determination of dissociation constant of COOH groups of fulvic acids (pK) were used in the potentiometric titration method. As the results show pH of rain waters changes in wide ranges: from 3.50 to 8.00, but in 80% cases pH of rain waters changes from pH 5.00 to 7.00. It was established, that the concentrations of fulvic acids, isolated from rain waters change from 10 mkg/L to 650 mkg/L. It was also established elemental composition and number value of dissociation constant of COOH groups of fulvic acids (pK) isolated from rain waters: C-51.92%, H-4.25%, O-41.31%, N-2.18%, S-0.34% and pK=4.24.

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