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The Concentration of Formaldehyde in Rainwater and Typhoon Rainwater at Sakai City, Japan

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Abstract : Formaldehyde (HCHO) concentrations in rainwater including in tropical storms in Sakai City, Osaka, Japan have been measured continuously during rain event by developed chemiluminescence method. The level of formaldehyde was ranged from 15 µg/L to 500 µg/L. The high concentration of HCHO in rainwater is related to the wind direction from the south and west sides of Sakai City where manufactures related to chemicals, oil-refinery, and steel. The in-situ irradiated experiment on rainwater sample was conducted to prove the aqueous phase photo-production of HCHO and the degradation of HCHO. In the daytime, the aqueous phase photolysis is the source of HCHO in rainwater (4.52 ± 5.74 µg/L/h for UV light source in-situ condition, 2.84-8.96 µg/L/h under sunlight). However, in the night time, the degradation is the function of microorganism.

Keywords : chemiluminescence, formaldehyde, rainwater, typhoon
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