Formation of typical volatile carbonaceous and nitrogenous disinfection by-products (C-DBPs and N-DBPs) during aqueous monochloramination of oxytetracycline (OTC) was investigated in this study. Impact factors including reaction time, pH, monochloramine (NH₂Cl) dosages, and bromide concentrations were examined. The results showed that six DBPs including chloroform, dichloroacetonitrile, trichloronitromethane, 1,1-dichloropropane, 1,1,1-trichloropropanone, especially extreme toxic N-Nitrosodimethylamine were found. Formation of these DBPs increased over time and monochloramine dosages with maximum yields given as 14.2, 4.3, 0.8, 2.1, 0.7, and 4.1 μg/mg at pH 7, respectively (μg/mg represents DBPs yields per mg of OTC). Solution pH exerted significant influence on the formation of all the DBPs species. Peak yields were found under circumneutral conditions. Production of bromine-substituted DBPs increased in the presence of bromide. Removal of presented OTC in waters should be implemented before chloramination disinfection process in drinking water treatment.

Keywords: Carbonaceous disinfection by-products (C-DBPs); Nitrogenous disinfection by-products (N-DBPs); N-Nitrosodimethylamine (NDMA); Monochloramination; Oxytetracycline (OTC)