

Heterogeneous reactions of gaseous ozone with aqueous sesquiterpenes: The roles of Criegee intermediates

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We report the detection of intermediates/products generated on fresh surfaces of alpha-humulene and beta-caryophyllene solutions in water/acetonitrile mixtures exposed to gaseous ozone for ~ 10 microsecond. We focus on the identification of intermediates/products and their mechanisms of formation via negative ion online electrospray mass spectrometry complemented with the use of (1) H/D and ¹⁶O/¹⁸O isotopes, (2) a OH-radical scavenger, (3) variable O₃ number densities, and (4) n-alkyl carboxylic acid additions. We will discuss how our results provide direct evidence on the distinct reactivity of Criegee intermediates at air/aqueous interfaces.

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