

Emission of volatile organic compounds from stressed plants

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Volatile organic compounds (VOC) elicited in response to biotic stress serve as volatile cues for parasitic and predatory insects. Although the mechanistic basis of enhanced terpene emission requires future study, enhancement of emissions following biotic interaction weather may importantly contribute to vegetation BVOC release and may need incorporation in emission models, especially given the high atmospheric reactivity of some of the emitted compounds such as sesquiterpene.

Sesquiterpene atmospheric lifetimes constrained by their rapid gas-phase reactions with ozone, and OH and NO₃ radicals have been estimated to be on the order of only few minutes. Even that the reactivity of lipoxygenase pathway is lower than non-oxygenated and non-saturated hydrocarbons they still significantly participate to atmospheric OH radical and O₃ formation. Therefore, all compounds emitted by stressed plants are anticipated to play an important role in aerosol-forming processes and in heterogenic reactions in the lower troposphere and clouds formation.