

# **On the multiple and overlooked functions of volatile isoprenoids in plant communication, defence, and interaction with the environment**

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There is circumstantial and direct evidence that volatile isoprenoids produced by photosynthesis intermediates, and emitted by vegetation can a) interact with biogeochemical atmospheric cycles leading to the formation of ozone and particle pollution; b) protect the photosynthetic apparatus and maintain leaf integrity under abiotic stresses, namely under water stress, high temperatures and oxidative stress; c) allow plants communicate with other organisms, eliciting direct and indirect defenses against herbivores and pathogens; and d) be a major loss of carbon in the atmosphere, ultimately even affecting the capacity to accumulate biomass, especially in fast growing, highly emitting plants. In this lecture, it is argued that isoprenoid emission, neglected by human-driven selection for agricultural productivity, might be a major evolutionary driver of photosynthesis resistance/resilience to climate change constraints.