Biogenic emission, biological origin, and mode of action of DMDS, a natural ubiquitous fumigant

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Measurements of biogenic sulphur emissions using trapping with gas-chromatographic analysis showed that in addition to H_2S, other sulphur compounds such as DMDS are released into the atmosphere.
Plants and soil microorganisms play a central role in DMDS emissions in marine environments, coastal wetlands, and terrestrial ecosystems via rather well-known pathways. Estimates of the contribution of biogenic DMDS emission to the atmospheric processes and to the atmospheric sulphur budget depend on the accuracy of the emission rates and are still extremely uncertain.
Several functions of sulphur emissions have been suggested, for example, antimicrobial effects, allelopathic effects in plants communities and the release of very active compounds. We demonstrated someone, specially in tritrophic interactions between plants, insects and parasitoids. DMDS emission may therefore be considered as a mechanism of defence against insects, mites, nematodes, fungi, and bacteria.
The DMDS mode of action was studied and it was established that it acts on mitochondrial respiration by blocking the cytochrome oxydase activity.
DMDS could offer a promising alternative to methyl bromide according to its good effectiveness and its low impact on the environment as natural DMDS plays already the same role.