



Geosmin in the mycorrhizosphere of *Tricholoma vaccinum*

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Abstract: Geosmin, a major contributor to the petrichor (earth smell) observed post-rain fall after a long spell of dryness, is a volatile chemical mainly produced by members of the genera *Streptomyces*. Although, many other organisms have been shown to produce this distinctly-smelling volatile, a recent discovery was made that our test organism, *Tricholoma vaccinum*, produces geosmin. Geosmin being a volatile organic compound (VOC) and with the numerous amount of research on the role of VOCs in communication between biological systems, we therefore are interested in understanding the role of geosmin in the communication between *Tricholoma vaccinum* and its norway spruce host, *Picea abies*. We are also interested in understanding the role of geosmin in *Tricholoma vaccinum*'s microbial community structure establishment. As part of the preliminary experiments, representative community members of the mycorrhizosphere of *Tricholoma vaccinum* will be isolated and effects of the interaction between them and *Tricholoma vaccinum* will be investigated. Also, biosynthesis and the route of biosynthesis of Geosmin in *Tricholoma vaccinum* will be confirmed and mutants will be generated to help in the analysis of volatile functions in communication, community structure establishment and mycorrhization.