The role of biotransformation in the environmental cycling of arsenic

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Arsenic is unique among trace elements by exhibiting a rich organic chemistry resulting in at least one hundred naturally occurring organoarsenic compounds in the environment. These compounds range from simple methylated arsenic acids and betaines through to arsenic-bound sugars and on up to arsenic-containing lipids of molecular mass 1000 or more [1].

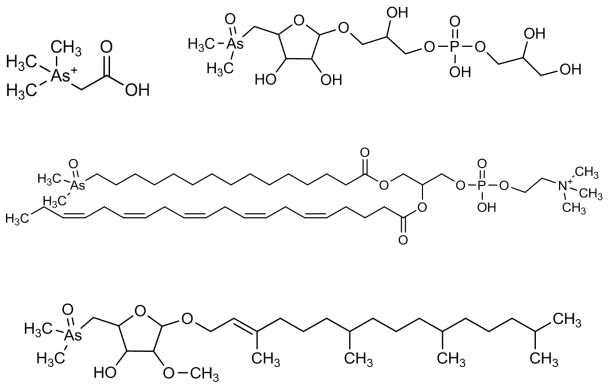

Figure 1: Examples of four typical organoarsenicals present in the environment

The structures of these compounds and the biotransformations leading to them are now being revealed by combined elemental and molecular mass spectrometric measurements, and application of laboratory and field-based experiments [2-4]. We report our latest results on the formation and fate of the various environmental arsenic species and their role in the global cycling of arsenic.

[1] Glabonjat et al. (2017) *Angew. Chem. Int. Ed.* **56,** 11963 – 11965. [2] Glabonjat et al. (2018) *Environ. Sci. Technol.* **52**, 522-530. [3] Glabonjat et al. (2018) *Metallomics* **10**, 145-153. [4] Xue et al. (2017) *Environ. Pollut.* **228**, 111-117.