

SUPPLEMENTAL INFORMATION
for

In Vitro Biotransformation of Dimethylarsinic Acid and Trimethylarsine
Oxide by Anaerobic Microflora of Mouse Cecum Analyzed by HPLC-ICP-
MS and HPLC-ESI-MS

Kevin M. Kubachka,^a Michael C. Kohan,^c Sean D. Conklin,^b Karen Herbin-Davis,^d John
T. Creed,^a and David J. Thomas^d

^aUS EPA, ORD, NERL, Microbiological and Chemical Exposure
Assessment Research Division, Cincinnati, OH 45268, USA.
E-mail: creed.jack@epa.gov; Fax: +1-513-569-7757;
Tel: +1-513-569-7617

^bOak Ridge Postdoctoral Research Fellow

^cUS EPA, ORD, NHEERL, Environmental Carcinogenesis Division,
Research Triangle Park, NC 27711, USA

^dUS EPA, ORD, NHEERL, Experimental Toxicology Division,
Research Triangle Park, NC 27711, USA

Four supplemental figures are included in this document with their respective
captions:

Figure SI-1

Figure SI-2

Figure SI-3

Figure SI-4

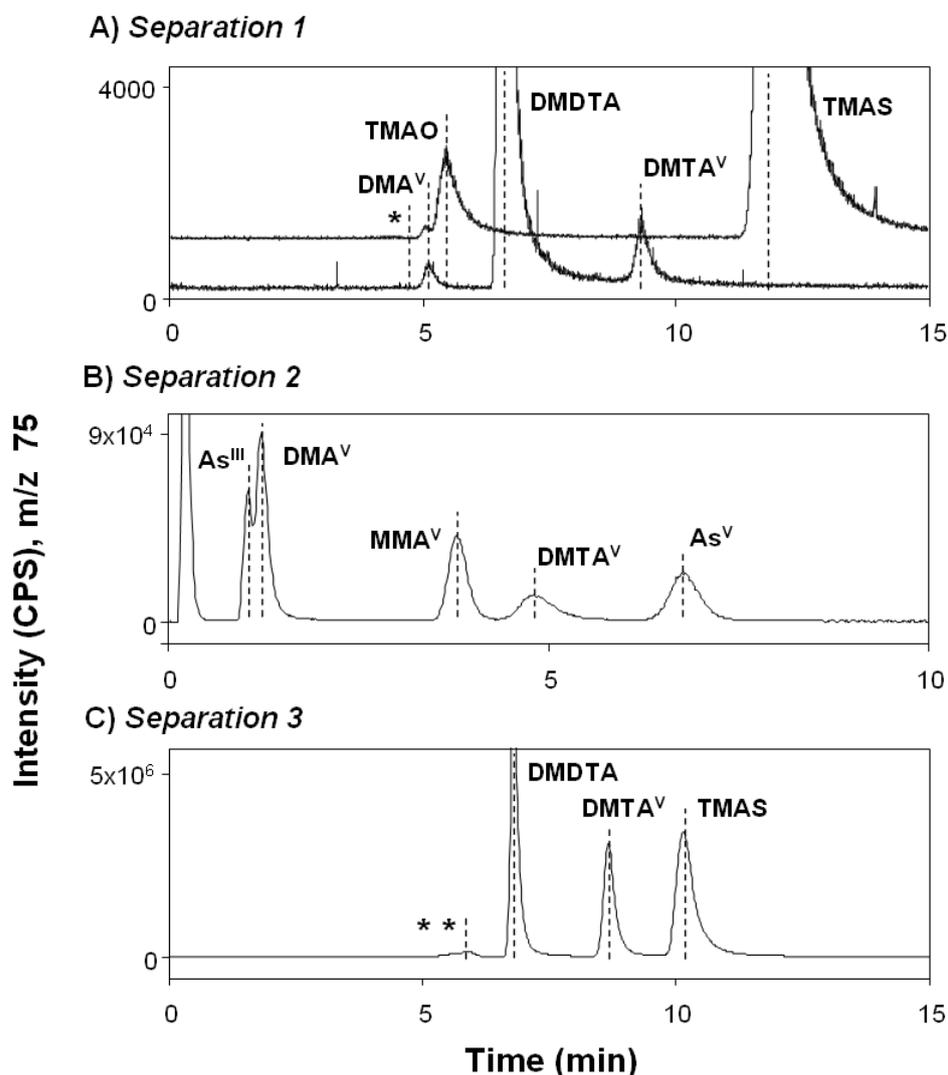


Figure SI-1: Example HPLC-ICP-MS chromatograms (m/z 75) for various mixtures of arsenic standard. A) HPLC-ICP-MS using **Separation 1** for the separation of TMAS standard (upper trace) with TMAO as an impurity and DMDTA standard (lower trace) with DMTA^V and DMA^V as impurities. * denotes elution time of As^{III}, As^V, and MMA^V elute. B) HPLC-ICP-MS using **Separation 2** for the separation of As^{III}, DMA^V, MMA^V, DMTA^V, As^V. C) HPLC-ICP-MS using **Separation 3** for the separation of a standard mixture of DMDTA, DMTA^V, and TMAS. ** denotes elution time of As^{III}, MMA^V, DMA^V, and As^V. The conditions for each separation are listed in **Table 1**.

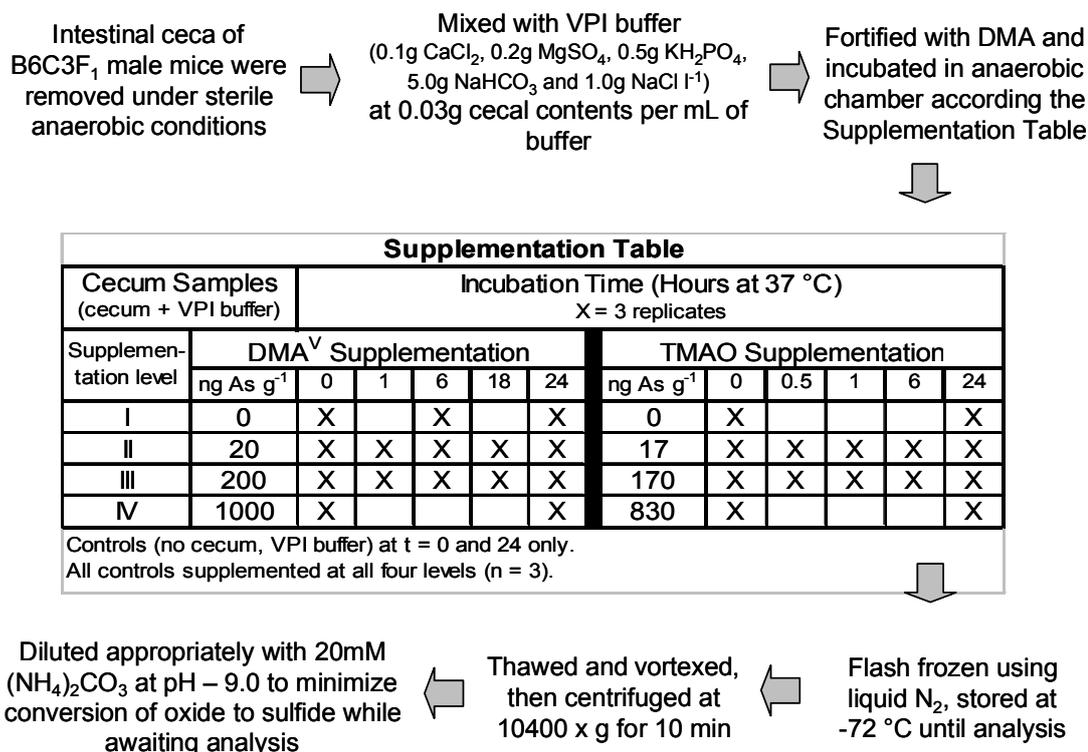


Figure SI-2: Summary of the experimental design including: cecal content preparation, supplementation levels (DMA^V and TMAO), anaerobic incubation period, and sample preparation prior to analysis.

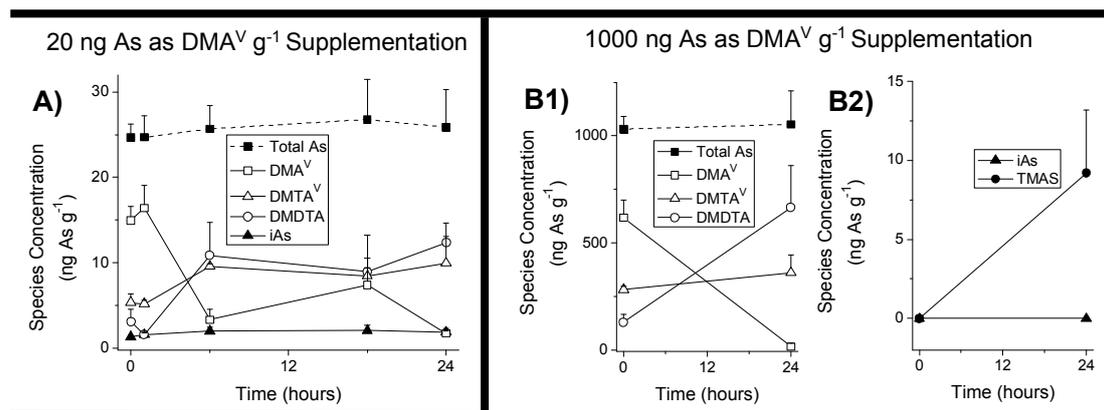


Figure SI-3: Time dependent metabolism of DMA^V (A) 20 ng As g⁻¹, B) 1000 ng As g⁻¹ (B1, major metabolites, B2, minor metabolites) in incubated reaction mixtures containing the anaerobic microflora from a mouse cecum. Data obtained by HPLC-ICP-MS analysis using *Separation 1*. Error bars represent 1 σ in the positive direction. Time dependence for concentrations of sum of all arsenic species (---■---), DMA^V (—□—), DMTA^V (—△—), and DMDTA (—○—), iAs (—▲—) (>95% As^V) and TMAS (—●—).

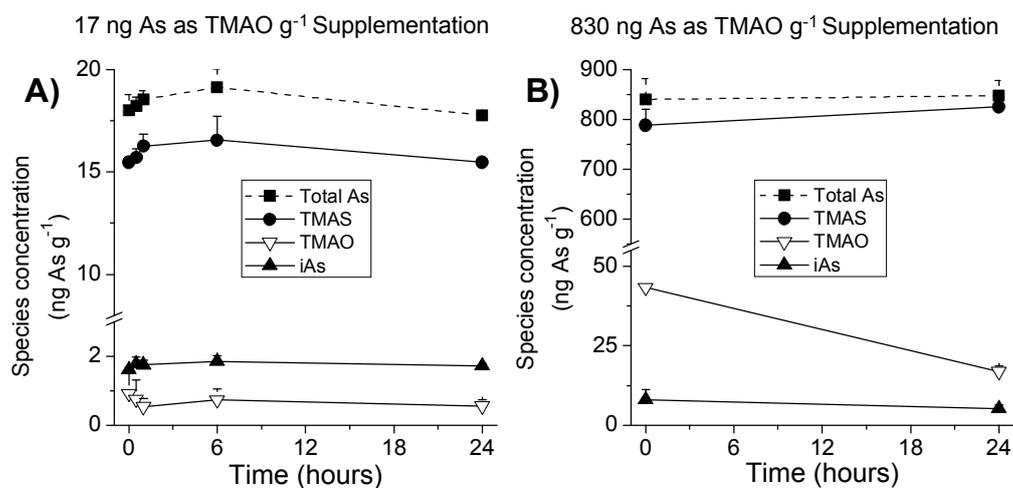


Figure SI-4: Time dependent metabolism of TMAO (**A**) 17 ng As g⁻¹, **B**) 830 ng As g⁻¹) in incubated reaction mixtures containing the anaerobic microflora from a mouse cecum. Data obtained by HPLC-ICP-MS analysis using *Separation 1*. Error bars represent 1 σ in the positive direction.

Time dependence for concentrations of sum of all arsenic species (---■---), TMAS (—●—), TMAO (—▽—), and iAs (—▲—) (>95% As^V).