**Supporting Information:**

**Ion chromatography – nitrogen-sustained microwave inductively coupled atmospheric pressure plasma – mass spectrometry (IC-MICAP-MS) for arsenic speciation analysis in rice.**

Shahnaz Mukta, Alexander Gundlach-Graham*

Iowa State University, Department of Chemistry, Ames IA, 50011, USA

*address correspondence to alexgg@iastate.edu

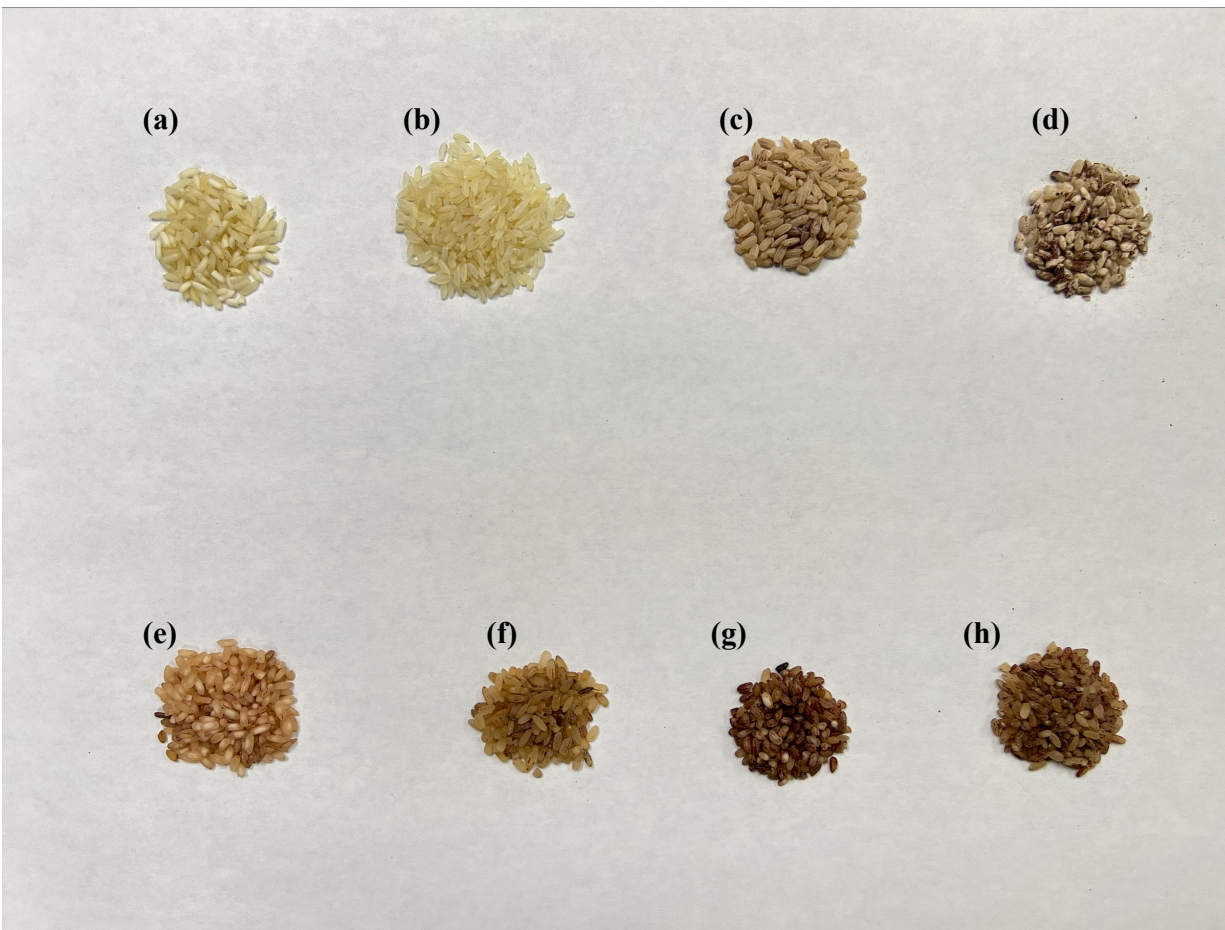**List of Figures**

**List of Tables**

**Figure S1.** Varieties of rice samples analyzed for arsenic species via IC-MICAP-MS. (a) Kotok (b) Katari (c) Kala Manik (d) Hijol Digha (e) Bawla Digha (f) Maita Koral (g) Topa Bora (h) Chamara

**Table S1.** Operating parameters for total arsenic analysis in rice samples with MICAP-MS

| | |
|---|---|
| Plasma flow (L min$^{-1}$) | 12.5 |
| Auxiliary flow (L min$^{-1}$) | 1.35 |
| Nebulizer flow (L min$^{-1}$) | 1.10 |
| Sheath flow (L min$^{-1}$) | 0.00 |
| Sampling depth (mm) | 5.0 |
| Plasma power (kW) | 1.50 |
| Pump rate (rpm) | 8.0 |
| Isotope measured | $^{75}$As |
| Ion optics | Optimized for highest $^{75}$As intensity |

**Table S2.** pK$_a$ for arsenic species, where K$_a$ is the acid dissociation constant

| Arsenic Species | Formula | pK$_a$ |
|---|---|---|
| As(III) | OAs(OH) | 9.23, 12.13, 13.4 |
| DMA | $(CH_3)_2AsO(OH)$ | 6.2 |
| MMA | $(CH_3)AsO(OH)_2$ | 4.1, 8.7 |
| As(V) | OAs(OH)$_3$ | 2.19, 6.98, 11.53 |
| AsB | $C_5H_{11}AsO_2$ | 2.18 |