**Figure S1.** **Screening of water soluble Hg binding biomolecules in rice seeds samples.**

Rice seeds (RS) samples were selected from different locations of Wanshan Hg mining areas: Dashuixi (DSX), Meizixi (MZX) and Gouxi (GX). Screening of biomolecules binding 202Hg are performed by HPLC-ICP-MS using a size exclusion chromatographic column. The molecular weight varies from approximately 650 to less than 10 kDa. Principally five main fractions are found when samples are eluted at 12, 21, 24, 27 and 29 minutes.