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**Arsenic, copper and zinc in the organic tissues and in the silica phytoliths of *Setaria vulpiset* growing on a contaminated soil of in a gold mining area**

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Silica phytoliths from the leaves of *Setaria vulpiset* (Lam.) Roem. & Schult growing spontaneously on gold-mine contaminated soil were extracted using the Environmental Protection Agency (EPA) 3052 method (HNO<sub>3</sub>+HCl+HF) and analyzed for Cu, Zn, and As content. The leaves of the plants and the soil were also analyzed for Cu, Zn, Cr, Ni, and As content by the EPA-3050 method (HNO<sub>3</sub>). The main objective was to determine the amounts of heavy metals present in the soil and organic part of the leaves and inside the structure of the silica phytoliths. The results show that the silica phytoliths comprise 3.9 % of the dry matter of leaves, and retain and store considerable amounts of heavy metals, especially Cu. In addition, we demonstrate that when the metals are estimated by the conventional acid digestion method (without HF), the amounts of metals absorbed by the plants are under-estimated because the silica phytoliths are not dissolved. Therefore, it is necessary to add the amounts of heavy metals found inside the phytoliths to the total amounts found in the organic part of the leaves. The silica phytoliths have high ability to sequester metals and make them unavailable in the environment. Our study should help in developing phytoremediation strategies using plants with high amounts of phytoliths.

**Keywords:** Biogenic opal, soil pollution, phytotoxicity, biominerals, heavy metals

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