

Microsymposium

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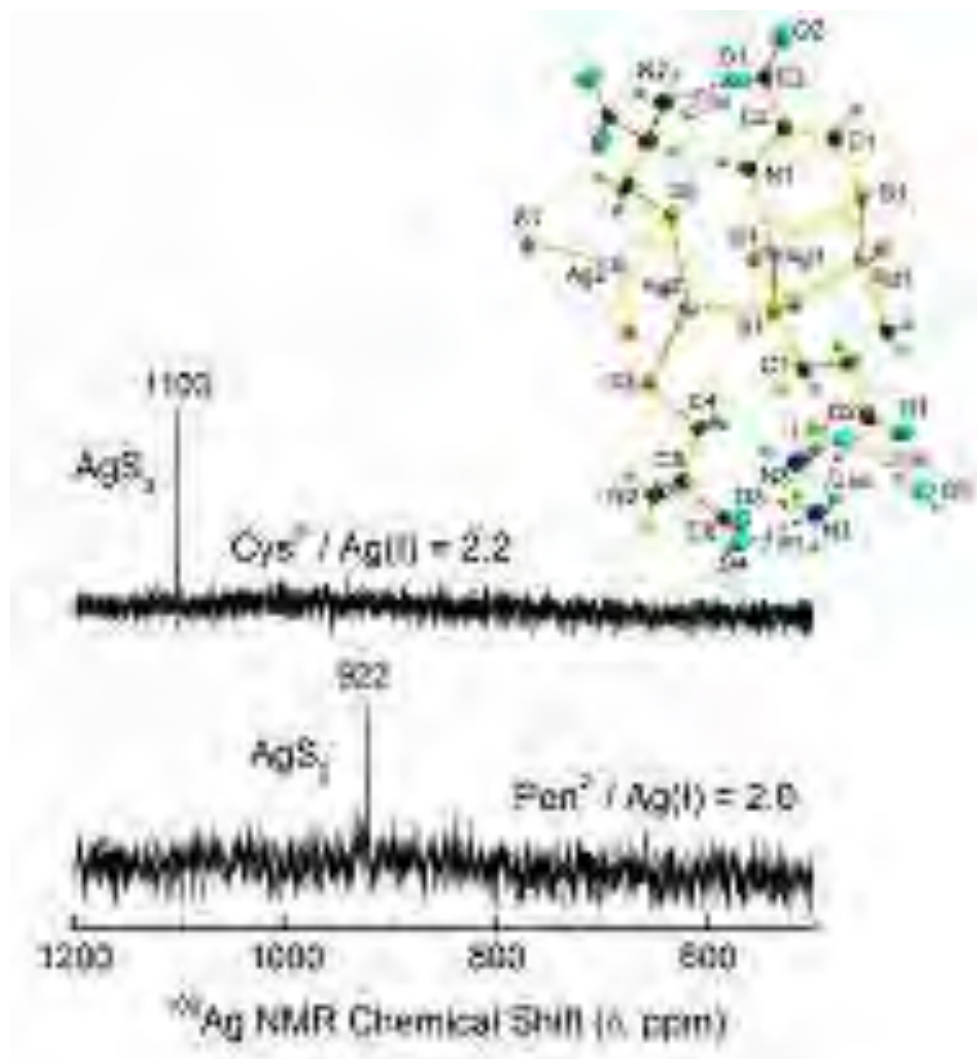
Silver(I) and Lead(II) Complex Formation with Thiolates

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Lead toxicity is frequently attributed to the displacement of essential metals such as zinc. Lead(II) ions mainly inhibit the enzymatic activity of ALAD, a key zinc-containing metalloenzyme in the heme biosynthetic pathway with much higher affinity to bind to Pb(II) than Zn(II) ions via its cysteinyl residues. Also for silver(I) ions the interaction with thiol-containing species such as cysteine and glutathione plays a key role in bacterial inactivation and Ag(I) antimicrobial activity. We will present the results of our investigations on Pb(II) and Ag(I) complex formation with small thiol-containing molecules of biological interest such as cysteine, penicillamine, N-acetylcysteine and glutathione, using a combination of different techniques, including X-ray absorption fine structure (XAFS) spectroscopy, multinuclear NMR (²⁰⁷Pb, ¹⁰⁹Ag) and X-ray crystallography.

[1] V. Mah, F. Jalilehvand, *Inorg. Chem.* 2012, 51, 6285-6298, [2] B.O. Leung, F. Jalilehvand, V. Mah, et al. *Inorg. Chem.* 2013, 52, 4593-4602



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