

Coordination of heavy metals by dithiothreitol, a commonly used thiol group protectant.

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Streszczenie

d,l-Dithiothreitol (DTT), known also as Cleland reagent, is a thiol group protectant, used commonly in peptide and protein chemistry. Therefore, it is often added at high concentrations in preparations of proteins relevant to heavy metal biochemistry. The coordination of five of these metal ions, Zn(II), Cd(II), Pb(II), Ni(II) and Cu(I) to DTT was studied by means of potentiometric titrations, and UV–Vis and NMR spectroscopies. It was found that DTT forms specific and very stable polymeric and monomeric complexes with all of these metal ions, using both of its sulfur donors. The quantitative description of these complexes in solution and the solid state provides the basis for predictions of interference from DTT in studies of metal ion binding of thiol-containing biomolecules.

Słowa kluczowe

DTT, Heavy metal ions, Thiolate coordination, Potentiometry, Spectroscopy

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