

13C NMR studies of the redox and exchange reactions of gold(I) thiomalate with diselenides. Ahmad, Saeed; Isab, Anvarhusen A.; Wazeer, M. I. M.. Dep. Chem., King Fahd Univ. Pet. Miner., Dharan, Saudi Arabia. Inorganic Reaction Mechanisms (Abingdon, United Kingdom) (2002), 4(1-2), 95-102

Abstract

Exchange reactions of gold(I) thiomalate (AuStm)_n (Myocrisin) with two diselenides (RSe-SeR), selenocystine and selenocystamine have been studied in D₂O by ¹³C NMR spectroscopy. Upon interaction of diselenides with (AuStm)_n, the Se-Se bond is broken, resulting in the formation of RSe-Stm and (AuSeR)_n species. RSe-Stm on further decomn. leads to the formation of thiomalic disulfide (Stm)₂. The second order rate const. was detd. for the decomn. of RSe-Stm species and is found to be $3.21 \times 10^{-4} \text{ l mol}^{-1} \text{ s}^{-1}$. The intensity of thiomalic disulfide resonances increases, while the intensity of RSe-Stm resonances decreases with time. The end result of both reactions is the formation of (Stm)₂ and the deposition of metallic gold and brown ppts. In both cases exchange takes place immediately, however, the overall reaction of (AuStm)_n with selenocystamine was faster than with selenocystine.