

**Redox and exchange reactions of gold(I) drugs with disulfides and diselenides in aqueous solutions.** Isab, Anvarhusein A.; Ashraf, Waqar; Wazeer, Mohammad I. M.. King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia. Abstracts of Papers, 228th ACS National Meeting, Philadelphia, PA, United States, August 22-26, 2004 (2004

**Abstract**

Exchange reactions of gold(I) thiomalate (AuStm)<sub>n</sub> with two diselenides (RSe-SeR), selenocystine and selenocystamine have been studied in D<sub>2</sub>O by <sup>13</sup>C NMR spectroscopy. Also the redox reactions of bis trialkylphosphine gold (I) bromide (where, alkyl = Me and ethyl) with two diselenides (R'Se-SeR'), selenocystine and selenocystamine and their corresponding disulfides were studied in D<sub>2</sub>O by <sup>31</sup>P NMR spectroscopy. Upon interaction of diselenides with (AuStm)<sub>n</sub>, the Se-Se bond is broken, resulting in the formation of RSe-Stm and (AuSeR)<sub>n</sub> species. RSe-Stm on further decompn. leads to the formation of thiomalic disulfide (Stm)<sub>2</sub>. The second order rate const. was detd. for the decompn. of RSe-Stm species and is found to be 3.21 x 10<sup>-4</sup> L.mol<sup>-1</sup>.sec<sup>-1</sup>. 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)<sub>2</sub> and the deposition of metallic gold and brown ppts. In both cases exchange takes place immediately, however the overall reaction of (AuStm)<sub>n</sub> with selenocystamine was faster than with selenocystine.