

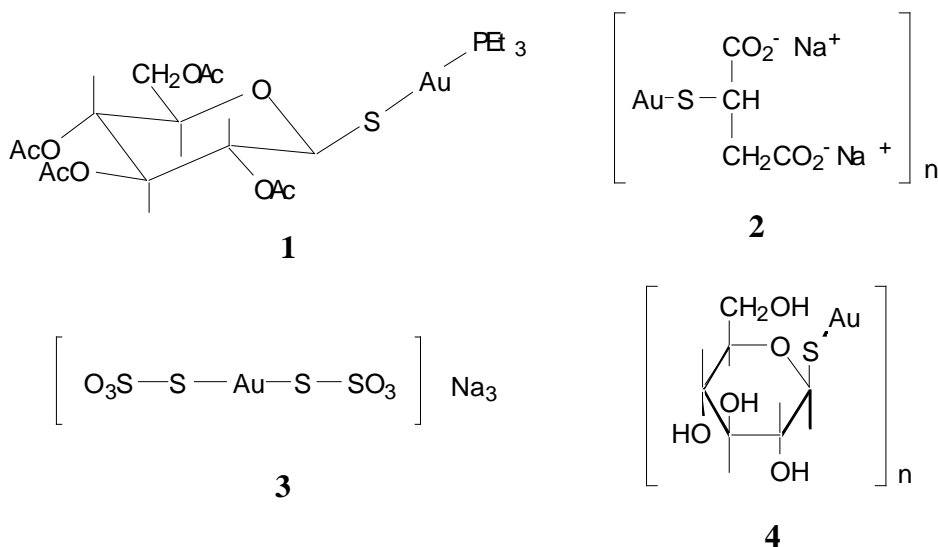
**ELECTROSPRAY MASS SPECTROMETRIC INVESTIGATION OF THE GOLD DRUG
AURANOFIN AND OTHER ANTI-ARTHRITIC AGENTS**

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Gold-containing drugs are widely used in the clinical treatment of rheumatoid arthritis¹, the greater majority of these being oligomeric gold thiolates $[\text{Au}(\text{SR})]_n$ ². Auranofin, (Ridaura, **1**), is an orally administered drug with a simple molecular structure, while Myochrysin (sodium aurothiomalate, **2**), Sanochrysin (auro-bis(thiosulfate), **3**), and Solganol (aurothioglucose, **4**) are among the injectable gold drugs. This work investigates the properties of these compounds in solution and their reactivities towards certain biologically-relevant molecules such as the tripeptide glutathione, amino acids and thiols.



Electrospray mass spectrometry (ESMS) has been used to characterise solutions of the four gold drugs (**1-4**). Results have been obtained using both a quadrupole mass spectrometer as well as a Fourier-Transform Ion Cyclotron Resonance (FTICR) instrument. The presence of sulfonium ions of the form $[(\text{Et}_3\text{PAu})_2\text{SR}]^+$ ($\text{R}=\text{C}_{14}\text{H}_{19}\text{O}_9$) in solutions of **1** was confirmed in positive-ion spectra along with $[\text{Au}(\text{SR})_2]$ in negative mode, indicating that some disproportionation occurs. Hydrolysis of the acetate groups of the carbohydrate-thiolate ligand can also be easily monitored using positive-ion ESMS.

References:

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2. Bau, R. J. Am. Chem. Soc. 1998, 120, 9380.