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Synthesis and Characterization of Potassium *bis*(butylsulphonyldithiocarbimato)aurate(III)

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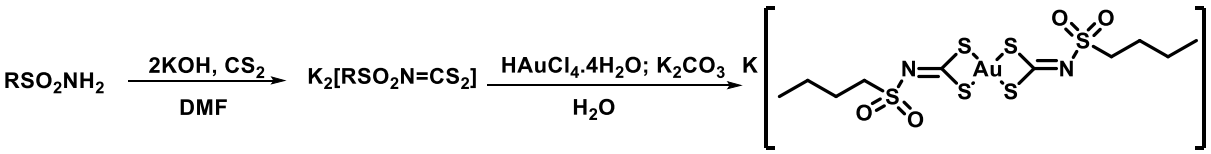
Dithiocarbimates ($RSO_2N{=}CS_2^{2-}$) are analogues to dithiocarbamates ($RR'NCS_2^{-1}$) and have similar structures. These ligands can coordinate to different metal centers, but unlike dithiocarbamates, they have fewer reports in the literature. These reports are mainly focused on the application of dithiocarbimate complexes as fungicides and rubber vulcanization accelerators. To the best of our knowledge, there are no reports of the application of this class of ligands in the field of Medicinal Chemistry [1].

Gold is a d^8 cation, as in its oxidation state III, it has an electronic configuration that fills all the available d orbitals. It possesses unique properties, which attract interest due to its properties and potential diverse applications. Some gold (III) complexes have shown antitumor activities, being studied as alternatives to platinum compounds in chemotherapy [2].

In this work, gold (III) dithiocarbimate complex $K[Au(RSO_2N{=}CS)_2]$, R= butyl was synthesized (Scheme 1) and fully characterized by IV, UV-vis and ^1H and ^{13}C NMR. The novel coordenation compound has a square planar structure and diamagnetic properties. This is the first report in the literature of the synthesis and characterization of an Au(III) complex with dithiocarbimate bearing an aliphatic group.



Scheme 1. Synthetic route for obtaining the complex.

The ^{13}C NMR exhibited 5 signals, confirming the proposed formulae for the compound. Additionally, the C=N signal appeared at 189.3 ppm, indicating the complexation of the ligand by the sulfur atoms.

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References

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