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## Au nanoparticles decorated with derivatized thiols: synthesis, characterization and applications

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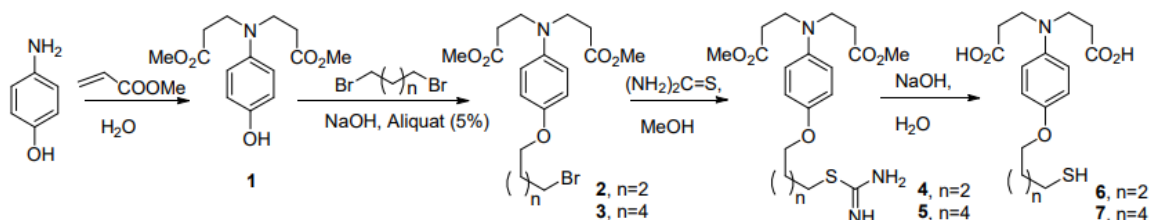
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### ABSTRACT

The study of gold nanoparticles (AuNPs) is of interest in the nanotechnology field due to their physicochemical properties. [1]

Two organic ligands were synthesized, with a terminal thiol capable of binding to AuNPs, a chromophore group and an aminodicarboxylate group (derived from aminodipropionic acid) with a known capacity to bind metal ions. The incidence in the colloidal system of the chain length linking the chromophore group and the thiol was studied.

The synthesis began with an aza-Michael addition to afford iminodiester (**1**), **Scheme 1**.



**Scheme 1:** Synthesis of ligands

The alkylaryl ethers (**2**)-(**3**) were obtained through Williamson's synthesis. The substitution of bromine with thiourea and its subsequent hydrolysis gave the products (**6**)-(**7**). [2]

AuNPs were prepared according to a previous work, [3] and then decorated with the ligands. The system is chemically stable under the tested pH and ionic strength conditions, enabling metal ion binding and potential use as sensors.

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