

Characterization of polymeric gold(I)-captopril complex using viscosity and various spectroscopic techniques.

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Abstract

The characterization of polymeric gold(I)-captopril (Aucap)_n is carried out using viscosity, electronic, mass, and ¹³C, ¹⁵N NMR spectroscopy. From viscosity measurements, it is obsd. that the degree of assocn. in (Aucap)_n is much higher than in (Autm)_n. The (Aucap)_n was further polymd. in the presence of SCN⁻ and SeCN⁻ ions; however, the CN⁻ ion caused the breakdown of the polymer. After a few hours of the addn. of SeCN⁻ to (Aucap)_n soln., SeCN⁻ underwent decompn. to produce CN⁻ and "Se" metal which caused dissocn. of the polymer. The mass spectroscopic results showed two characteristic routes of fragmentation for (Aucap)_n. Electronic spectroscopy indicated the generation of [Au(CN)₂]⁻ at a CN⁻:(Aucap)_n ratio ≥ 1, whereas ¹³C, ¹⁵N NMR spectroscopic studies have indicated the detection of [Au(CN)₂]⁻ even at a 1:12 ratio of CN⁻:(Aucap)_n. The ¹³C NMR is found to be sensitive to the configuration of the penultimate captopril moiety.