

N-Benzoylthiocarbamoyl Amino Acid Ethyl Esters as Chelate Ligands for Transition Metal Ions

Frank Leßmann^a, Lothar Beyer^{a,*}, Rainer Richter^a, Reinhard Meusinger^{b,*}

Universität Leipzig, Fakultät für Chemie und Mineralogie, ^a Institut für Anorganische Chemie,

^b Institut für Analytische Chemie, Talstraße 35, D-04103 Leipzig

Dedicated to Professor Klaus Burger on the occasion of his 60th birthday

Z. Naturforsch. **53 b**, 981–990 (1998); received November 11, 1997

Thioureas, Amino Acid Ethyl Esters, Chelates, NMR Data, Crystal Structure

The reactions of benzoyl isothiocyanate with amino acid ethyl esters (N-butyl glycine ethyl ester, (*S*)-(-)-proline ethyl ester) give N-benzoylthiocarbamoyl amino acid ethyl esters. Apart from the expected N-benzoylthiocarbamoyl (*S*)-(-)-proline ethyl ester the racemic N-benzoylthiocarbamoyl (*R*)/(*S*)-proline ethyl ester is formed because of base catalyzed racemization of the educt (*S*)-(-)-proline ethyl ester during the reaction of (*S*)-(-)-proline ethyl ester hydrochloride with triethylamine. The structures of both compounds were established by X-ray crystal structure analysis and specific optical rotation measurements. The ligands yield neutral 2:1 chelates with Ni^{II}, Cu^{II}, Pd^{II} and Pt^{II}. The carboxylic oxygen atoms are not involved in the chelation. The ligands and the resultant complexes show configurational *E/Z* isomerism. In the case of the chelates of the racemic N-benzoylthiocarbamoyl (*R*)/(*S*)-proline ethyl ester, additional *R/S* isomerism is observed as shown by NMR spectroscopy.

* Reprint requests to Prof. Dr. L. Beyer or Dr. habil. R. Meusinger.