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**Palladium(II) Chelates of 1, 1-Dimethyl-3-(4-methyl-2-thiazolyl)-  
thiourea and Related Thioureas\***

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We reported previously that 1,1-dimethyl-3-(4-methyl-2-thiazolyl)thiourea and related N-(2-thiazolyl)thioureas are potentially useful chelating agents for spectrophotometric determination of metal ions. Facile and sensitive methods for the determination of Pd(II) with 1,1-dimethyl-3-(4-methyl-5-nitro-2-thiazolyl)thiourea and 1,1-dimethyl-3-(4-p-nitrophenyl-5-nitro-2-thiazolyl)thiourea were proposed.

In order to establish the identity of colored substances in the spectrophotometric determination, we prepared Pd(II) chelates of 1,1-dimethyl-3-(4-methyl-2-thiazolyl)thiourea, 1,1-dimethyl-3-(4-phenyl-2-thiazolyl)thiourea, 1,1-dimethyl-3-(4-methyl-5-nitro-2-thiazolyl)thiourea, 1,1-dimethyl-3-(4-p-nitrophenyl-2-thiazolyl)thiourea, 1,1-dimethyl-3-(4-p-nitrophenyl-5-nitro-2-thiazolyl)thiourea, and 1,1-diethyl-3-(4-methyl-5-nitro-2-thiazolyl)thiourea. The molecular structures the prepared Pd(II) chelated were determined by means of spectroscopic, thermochemical, and X-ray crystallographic measurements. The results indicated that Pd(II) formed 1 : 2 chelates with the thioureas and that the ligands were bidentate and coordinated through the thiourea sulfur and thiazole nitrogen atoms. The geometry of Pd(II) coordination was roughly square-planar and the configuration of the two thiazolylthiourea molecule was cis.

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