

# Synthesis and spectroscopic characterization of a new palladium(II) complex with taurine

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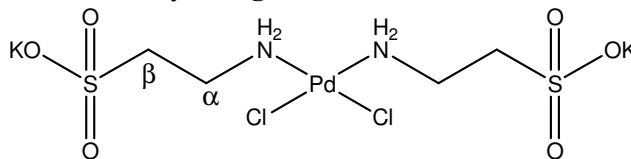
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Platinum complexes and their palladium analogs have been explored in the synthesis of new medicinal agents in treatment of cancer and infectious diseases for a long time<sup>1</sup>. Taurine, or 2-aminoethanesulphonic acid, is a sulfur-containing amino acid synthesized endogenously, which, according to the literature, exhibits antioxidant activities, protection over ischemic heart disease and atherosclerosis<sup>2</sup>. In the viewpoint of coordination chemistry, this natural occurring amino acid can be considered a versatile ligand in the synthesis of new metal complexes of platinum(II) and palladium(II). The present work deals with the synthesis and spectroscopic characterization of a novel palladium complex with taurine. The Pd(II) complex (Pd-aurine) was synthesized in aqueous solution and characterized by chemical and spectroscopic methods. Anal. Calc. for K<sub>2</sub>[PdCl<sub>2</sub>(C<sub>2</sub>H<sub>6</sub>NO<sub>3</sub>S)<sub>2</sub>] (%): C 9.54; H 2.40; N 5.56. Found: C 9.14; H 2.29; N 5.09%. The thermogravimetric (TGA) data confirmed the composition of the complex. Infrared and Raman spectroscopic data indicate the coordination of the ligand to Pd(II) by the nitrogen atom of the amino group. Taurine and the Pd-aurine complex were also analyzed by solid state <sup>13</sup>C (CP/MAS) and <sup>15</sup>N (CP/MAS) NMR techniques. **Table 1** presents the chemical shifts for taurine and Pd-aurine, and also the chemical shift difference ( $\Delta\delta = \delta_{\text{Pd-aurine}} - \delta_{\text{Taurine}}$ ) for each signal.

**Table 1.** <sup>13</sup>C (CP/MAS) and <sup>15</sup>N (CP/MAS) SSNMR signals for taurine and Pd-aurine complex.

Assignments	(ppm) Pd-aurine complex	(ppm) Taurine	$\Delta\delta = \delta_{\text{Pd-aurine}} - \delta_{\text{Taurine}}$
C $\alpha$	43.81	36.39	7.42
C $\beta$	54.06	47.13	6.93
NH <sub>2</sub>	-4.49	34.17	-38.66

The values of  $\Delta\delta$  confirm the coordination of the ligand to the Pd(II) by nitrogen atom of the NH<sub>2</sub> group, as shown schematically in **Figure 1**.



**Figure 1.** Structure of Pd-aurine complex.

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