



Nickel(II) complexes with *N*-(thio)phosphorylthioureas $\text{AdNHC(S)NHP(X)(OiPr)}_2$: versatile coordination of phosphoryl ($\text{X} = \text{O}$) and thiophosphoryl ($\text{X} = \text{S}$) derivatives.

Autorzy

Damir A. Safin
F. D. Sokolov
Łukasz Szyrwił
Maria G. Babashkina
T. R. Gimadiev
F. E. Hahn
Henryk Kozłowski
D. B. Krivolapov
I. A. Litvinov

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The reaction of the potassium salts of *N*-(thio)phosphorylated thioureas of the common formula $\text{AdN(H)C(S)N(H)P(X)(OiPr)}_2$ ($\text{X} = \text{O}$, HL^{I} ; $\text{X} = \text{S}$, HL^{II}) with the Ni(II) cation in aqueous EtOH leads to $[\text{Ni}(\text{L}^{\text{I,II}})_2]$ chelate complexes. The molecular structures of the thioureas $\text{HL}^{\text{I,II}}$ and the complexes $[\text{Ni}(\text{L}^{\text{I-N,S}})_2]$ and $[\text{Ni}(\text{L}^{\text{II-S,S'}})_2]$ were elucidated by single crystal X-ray diffraction analysis, IR, ^1H and ^{31}P NMR spectroscopy and microanalysis. In the complex $[\text{Ni}(\text{L}^{\text{I}})_2]$, the metal center is found to be in a square-planar N_2S_2 environment formed by the CS sulfur atoms and the P–N nitrogen atoms of two deprotonated L^{I} ligands. The ligands are in a *trans* configuration. The Ni(II) atom in complex $[\text{Ni}(\text{L}^{\text{II}})_2]$, with the deprotonated thiourea L^{II} , is coordinated in a square-planar fashion by the CS and PS sulfur atoms of two anionic ligands. The ligands are in a *cis* configuration.

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