

# Synthesis and characterization of late transition metal complexes with 2-(tetrazol-1-yl)pyridine

T.V. Serebryanskaya, A.A. Zhurauleva, A.S. Lyakhov,  
Yu.V. Grigoriev, O.A. Ivashkevich

Research Institute for Physical Chemical Problems, Belarusian State University,  
Minsk, Belarus, e-mail: [serebryanskaya.t@gmail.com](mailto:serebryanskaya.t@gmail.com)

Late transition metal complexes of tetrazolyl-substituted pyridines are of great importance as potential antiproliferative and theranostic agents [1,2]. Majority of the up to date reported species are derived from 5-tetrazolyl pyridines. In the present study, we report on synthesis, structure and properties of Pt(II), Pd(II) and Ru(II)-based complexes with a representative N-tetrazolyl substituted pyridine, namely 2-(tetrazol-1-yl)pyridine [1-pytz]. Complexes  $M(1\text{-pytz})Cl_2$  ( $M = Pt, Pd$ ) were synthesized *via* direct interaction of the corresponding metal chlorides ( $K_2PtCl_4$  or  $PdCl_2$ ) with 1-pytz under ambient conditions. Ru(II) complex  $Ru(1\text{-pytz})_2Cl_2$  was prepared from  $RuCl_3$  and 1-pytz in the presence of 2-(tetrazol-5-yl)pyridine in methanol under reflux conditions and argon atmosphere. The resulting complexes were characterized by elemental analyses, ESI(+)-mass-spectrometry, IR-spectroscopy,  $^1H$  and  $^{13}C$  NMR spectroscopy, and simultaneous thermal analysis. Molecular and crystal structure of  $Pd(1\text{-pytz})Cl_2$  was established by single-crystal X-ray diffraction analysis (Figure 1). In the structure, 2-(tetrazol-1-yl)pyridine coordinates as a N,N-chelating ligand *via* N atom of pyridine and  $N^2$  atom of the tetrazole ring.

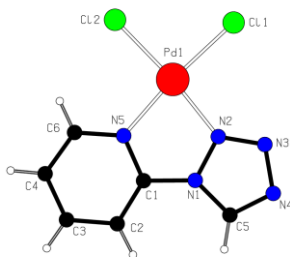


Fig. Molecular structure of  $Pd(1\text{-pytz})Cl_2$

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## References

- [1] C. Caporale et al. Chem. Eur. J. (2017) 62: 15666
- [2] UK Patent Application GB2485404A, 16.05.2012