A New Dioxovanadium(V) complex of *ortho*-Vanillin Isonicotinoyl Hydrazone as a Potential Tool for Alzheimer's Treatment

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One of the most promising therapeutic approaches to Alzheimer's disease is to regularize metal homeostasis and reduce oxidative stress through the usage of moderate-affinity ligands, known as 'Metal-Protein Attenuating Compounds' (MPACs). In the last years, we have introduced the concept of hydrazone-based MPACs, such as *o*-vanillin isonicotinoyl hydrazone (INHOVA). The present study reports an UV-Vis stability test on a solution of this compound, and the synthesis of a vanadium coordination complex of INHOVA is proposed as a mean of increasing its solution availability. INHOVA was prepared as described by González-Baró *et al.*[1] and its novel dioxovanadium(V) compound (**1**) was synthesized through reaction with $VOSO_4 \cdot 5H_2O$.

INHOVA showed high susceptibility to hydrolysis over time (Figure 1, left). Since hydrolysis begins with protonation of the azomethine nitrogen, coordination trough this donor atom should prevent that reaction. The crystal structure of **1** (Figure 1, right) shows a VO_2^+ ion coordinated to a fully deprotonated ligand ($INHOVA^{2-}$) by the phenolate oxygen, azomethine nitrogen and the enolate oxygen. Protonation at the pyridine nitrogen guarantees the electrical neutrality of the set. Metal complexes of relatively unstable MPACs could constitute a strategy to work with a broader family of compounds in the *in vitro* and pre-clinical evaluation phases.

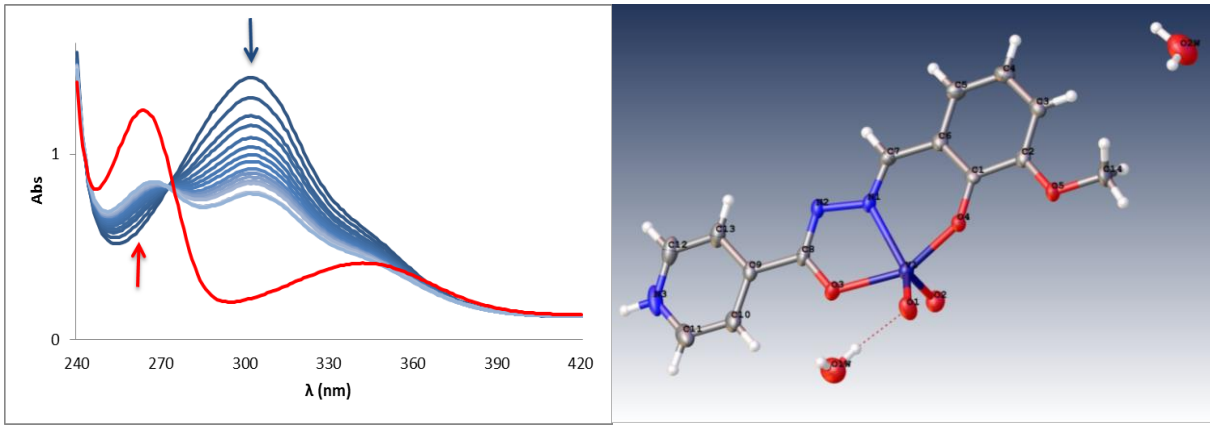

Figure 1. Series of UV-Vis spectra of an INHOVA solution over time (left) and XRD structure of **1** (right).

1. González-Baró, A. C.; Pis-Diez, R.; Parajón-Costa, B. S.; Rey, N. A.; *J. Mol. Struct.* **2012**, *1007*, 95.

CNPq, FAPERJ