

## Synthesis and inner-sphere hydrophosphorylation of ( $\eta^2$ -C,C), ( $\eta^2$ -C,N)-N-benzyl-N-[1,3-dimethyl-2-enilidene-aminocarbonyl[tris(pyrrol- $\alpha$ -methyl)aminomolybden(0)]

© Arcady I. Kuramshin,<sup>+</sup> Elena V. Asafieva, Rafael A. Cherkasov,\* and Vladimir I. Galkin

Department of High-molecular and Organoelemental Compounds. A.M. Butlerov Institute of Chemistry.

Kazan Federal University. Kremlevskaya St., 18. Kazan, 420008. Russia.

Phone: +7 (843) 231-54-16. E-mail: fea\_naro@mail.ru

\*Supervising author; <sup>+</sup>Corresponding author

**Keywords:** organometallic compounds, tris(pyrrol- $\alpha$ -methyl)amin, inner-sphere hydrophosphorylation, aminophosphonate-amidophosphate rearrangement.

### Abstract

We have obtained the organometallic derivative having the conjugated azadien being coordinated to the carbonyl [tris(pyrrol- $\alpha$ -methyl)amino-molybdenum core, where the azadien ligand is coordinated with the metal core via the  $\pi$ -systems of carbon-carbon and carbon-nitrogen double bonds. The interaction of diethylphosphite with both tris(pyrrol- $\alpha$ -methyl)amine and its tricarbonylmolybdenum derivative were studied and it was demonstrated that tris(pyrrol- $\alpha$ -methyl)amine and its organometallic derivative do not react, the only observed process is the formation of H-bonds of pyrrol cycles protons with the phosphoryl oxygen. It was shown that the inner-sphere hydrophosphorylation of azadien proceeds towards the carbon-nitrogen double-bond. The product of this inner-sphere regrouping reaction is aminophosphonate. both organophosphorus compounds do not leave the molybdenum coordination sphere.