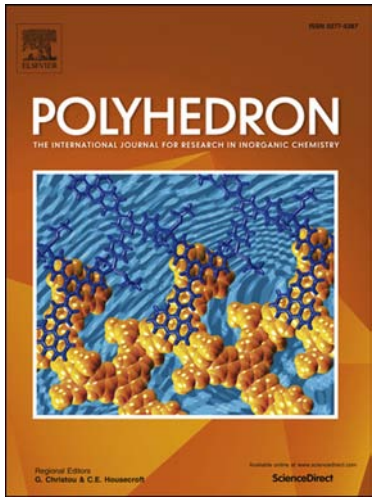


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# Diverse Coordination of Schiff Bases Based on 2-(aminomethyl)pyridine or 2-acetylpyridine at Mo(IV) Centre: Synthesis, Crystal Structures and Physicochemical Properties

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## Abstract

The reaction of Schiff bases formed in reaction of 2-(aminomethyl)pyridine and aliphatic ketones (acetone, dihexyl ketone, 2- and 4-heptanone) or 2-acetylpyridine and 2-aminoethanol with $K_3Na[Mo(CN)_4O_2]\cdot 6H_2O$ in water-ethanol solution results in isolation of two new complexes of formulae: $(PPh_4)[Mo(CN)_3O(ampy)]\cdot 2H_2O$ (**1**) (ampy = 2-(aminomethyl)pyridine) and $(PPh_4)[Mo(CN)_3O(aceamet)]\cdot 2H_2O$ (**2**) (aceamet = 2-{[1-(pyridin-2-yl)ethyl)]amino}ethanol). The isolated salts were characterized by elemental analysis, single crystal X-ray structure measurements, IR and UV-Vis spectroscopy and cyclic voltammetry. The complexes crystalize in monoclinic (**1**) or triclinic (**2**) space group with very distorted geometry of the anion with almost identical Mo=O distance (1.674 Å and 1.673 Å for **1** and **2** respectively). The energy of intense MLCT transitions in visible part of the spectra were found to be dependent on pyridine ring position (*cis* in **1** and *trans* in **2**) to Mo=O bond and show strong solvatochromic effect dependent on the nature of the solvent. The very unusual position of pyridine ring in **2** as well as coordination of only 2-(aminomethyl)pyridine in **1** is discussed in terms of the reaction scheme in which for both salts only Schiff base ligand components [chelating 2-(aminomethyl)pyridine or 2-acetylpyridine)] are coordinated at first reaction step. The results presented in paper indicate, that the Schiff bases cannot be treated as typical stable organic ligands, but rather as a complex system. The metal (or complex) determine which element of this system and in what sequence is coordinated.

**Keywords:** Molybdenum, Schiff bases, Complexes, X-ray diffraction.

## 1. Introduction