

# Poster Presentations

## [MS38-P11] Multinuclear Ag(I) Complexes with $N^4$ -substituted-4H-1,2,4-triazol-4-amines.

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1,2,4-Triazole and its derivatives are very intensively studied as ligands capable to coordinate to transition metal ions to form various mononuclear, oligonuclear and polynuclear coordination complexes [1, 2]. It was shown that Cu(I) ions form x-shaped binuclear units with  $N^4$ -(4-chlorobenzylidene)-4H-1,2,4-triazol-4-amine, in which the binuclear copper(I) centers are bridged by two  $N^1, N^2$ -coordinated triazole ligands, and additional triazole ligand is bound to the Cu(I) ion in a monodentate fashion [3, 4]. It was also shown that similar binuclear units are formed by related  $N^4$ -(2-hydroxybenzylidene)-4H-1,2,4-triazol-4-amine with silver(I) ions [5]. However, the same ligand forms also tetranuclear Ag(I) complex, when  $AgAsF_6$  is used in the synthesis instead of  $AgBF_4$  [6]. Contrary to the binuclear Ag(I) complex with  $N^4$ -(2-hydroxybenzylidene)-4H-1,2,4-triazol-4-amine, self-assembly of the binuclear Cu(I) complex with  $N^4$ -(4-chlorobenzylidene)-4H-1,2,4-triazol-4-amine leads to formation of 1D channels potentially capable for guest exchange. Systematic studies focused on influence of various  $N^4$ (benzylidene substituted)-4H-1,2,4-triazol-4-amines on formation of various multinuclear Ag(I) complexes show that Ag(I) ions tend to form binuclear units similar to those previously reported and above mentioned, when 2-methoxy-, 4-methyl-, 3-bromo-, 4-bromo-, 3,5-dimethoxy- or 3-ethoxy-4-hydroxybenzylidene derivatives and  $AgCF_3SO_3$  have been used. When  $N^4$ -(2-chlorobenzylidene)-4H-1,2,4-triazol-4-amine and  $AgNO_3$  were used in the synthesis, tetranuclear Ag(I) complex was obtained. Using  $AgNO_3$  instead of  $AgCF_3SO_3$  afforded in

tetranuclear Ag(I) complex formation with  $N^4$ -(4-methylbenzylidene)-4H-1,2,4-triazol-4-amine. Depending on molar ratio of  $N^4$ -(3-ethoxy-4-hydroxybenzylidene)-4H-1,2,4-triazol-4-amine and  $AgNO_3$ , binuclear (two crystalline forms) or polynuclear Ag(I) complexes were obtained. In turn, 1D Ag(I) polymer is formed, independent on molar ratio of  $N^4$ -(3,4-dihydroxybenzylidene)-4H-1,2,4-triazol-4-amine and  $AgNO_3$ .

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