

# Poster Presentations

## [MS25-P13] Water Soluble Phosphonium Salts as Supramolecular Synthons

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Water soluble aryl phosphonium salts are known as the product of reaction of sulphonated tertiary aryl phosphanes with unsaturated carboxylic acids in aqueous media under ambient conditions.[1] However, aliphatic phosphanes and their phosphonium salt derivatives are rather sensitive for oxygen and moisture. The small water soluble aliphatic phosphane, 1,3,5-triaza-7-phosphaadamantane (PTA) is an effective catalyst of the Morita-Baylis-Hillman (MBH) reaction *i.e.* coupling of aldehydes with activated olefins resulting the corresponding allyl alcohol derivative.[2] Phosphonium salts play intimate role in the phosphorous catalyzed MBH reaction and could have paramount importance in hydrogenation reactions catalyzed by platinum metal complexes of tertiary phosphanes, as well. We have managed to prepare a whole library of phosphonium salts under appropriate conditions by reacting PTA with activated olefins. The detailed analysis of the crystal structures of these phosphonium salts will be presented. The compounds are perfectly air stable in the solid state and their crystals are brittle. The structures are stabilized by strong ionic and weak van der Waals interactions as well as weak C-H...O / strong O-H...O hydrogen bonds.

Moreover, PTA derivative phosphonium salts can serve as supramolecular synthons *via* (N,O) coordination. Silver complexes of various phosphonium salts were also prepared as colorless crystals containing interesting 3D networks (see Figure). Steric effects of various counter ions on the supramolecular assembly have been explored. CSD search [3] revealed that

the observed Ag(N<sub>2</sub>O<sub>2</sub>) coordination has a rather unusual geometry because of combined steric and electronic factors allowing only highly distorted coordination around Ag(I). The structures are rather different than that of silver complex of hexamethylenetetramine with SbF<sub>6</sub><sup>-</sup>, too.

[4] The work was supported by the TÁMOP-4.2.2/B10/1-2010-0024 project. The project is co-financed by the European Union and the European Social Fund.

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**Keywords:** supramolecular assemblies; phosphorous compounds; silver complexes