

Green Chemistry and Technology

September 17-19, 2018 | Amsterdam, Netherlands

Study of the *in situ* formulation of active condensation agents and their use for amide formation

Andrea Morandini¹, V Beghetto^{1,2}, L Agostinis^{1,2}, V Gatto^{1,2}, S Conca², R Sole¹ and N Bardella¹

¹Ca' Foscari University of Venice, Italy

²Crossing Srl, Italy

The synthesis of covalent bonds for the formation of amides and esters is of great importance to produce pharmaceuticals, peptides, polymers, etc., and these reactions often require a long time and hard conditions. A wide variety of condensing reagents is known such as acyl azides, uronium salts and carbodiimides can occur by these reactions in a short time and at room temperature. In the last decade, 4-(4,6-dimethoxy-1,3,5-triazin-2-yl)-4 methyl-morpholinium chloride (DMTMM) has been demonstrated to be a very efficient condensing reagent and its use is rapidly increasing due to its high activity, high solubility in water and alcoholic solvents. New alternative condensing agents are of great interest for fine chemistry synthesis to reduce costs and improve yields. Keeping this in mind, we developed a protocol for the *in situ* preparation of a library of 4-(4,6-dialkoxy-1,3,5-triazin-2-yl)-4-alkyl-ammonium halides to be used as condensing agents for the formation of amide bonds. Our preliminary results show that these quaternary ammonium salts formulated *in situ*, further simplify the use of these reagents reducing their cost. Moreover, in some cases the preformed quaternary ammonium salt is unstable and decomposes quickly while the *in situ* formulation gives an active and efficient condensing agent. Conversions of over 80% are achieved in most cases in around 15 minutes. These activating agents have been efficiently employed for the synthesis of amides and the stabilization of collagen.

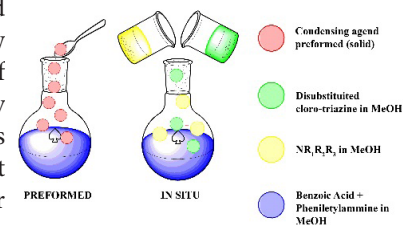


Figure 1: Condensation reaction by preformed and *in situ* 1,3,5-triazine quaternary ammonium salts.

Biography

Andrea Morandini was born in Latisana (Italy) on July 21, 1990. He graduated in Chemistry and Sustainable Technologies at Ca' Foscari University of Venice in 2017. Currently PhD student in Chemistry at the University Ca' Foscari di Venezia, His research concerns the development of new antimicrobial agents and their use for the production of innovative polymeric materials."

andrea.morandini@unive.it

Notes: