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ABSTRACTS BOOK

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Palladium catalyzed carbonylations:

a useful tool for the synthesis of Fine Chemicals

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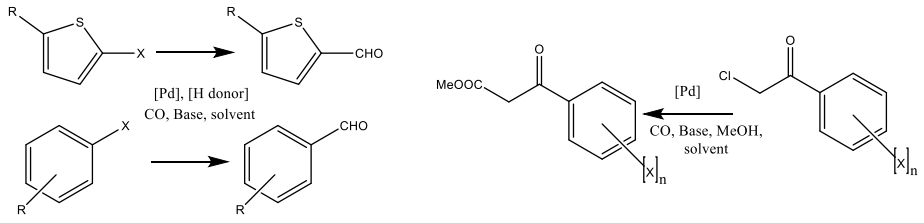
Abstract

Functionalization of aryl/heteroaryl halides and a-haloketones is of major importance for modern organic synthesis since the resulting products are frequently valuable intermediates for agrochemicals, pharmaceuticals, fine chemicals and new materials. Palladium catalyzed reactions with carbon monoxide can represent a powerful tool to obtain the target molecules even if many parameters, as nature of Pd catalyst, CO pressure, solvent, base and H-donor, have to be investigated and optimized for sustainable industrial applications. Generally, homogeneous Pd-based catalysts present several advantages as high selectivities, good yields and easy optimization of the catalyst by modification of ligands but the difficulty of catalyst separation and recycling represents an economic and environmental barrier. To overcome the separation problems in homogeneous catalysis and for the consideration of the environmental aspects of the chemical production, new selective and efficient heterogeneous catalysts or, in alternative, liquid-liquid two-phase systems with the catalyst confined in one of the two phases and the product in the other phase, have to be developped. In our research activity [1] both possibilities are currently investigated using **Pd/Al_2O_3**, with a very low metal content (0.2-0.5%) and easily prepared by us, and biogenerated Pd species (**Pd-EPS**) embedded in a peculiar polysaccharide matrix as catalysts and efforts to find better reaction parameters for potential sustainable processes are made. Some aryl and heteroaryl aldehydes, useful as fragrances and flavours, as well as alkyl 2-(halosubstituted)aryl-2-oxo-propionates, valuable intermediates for agrochemicals have been produced (Scheme) with fine-excellent conversion and selectivity and satisfactory TOF.



Scheme

References

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