C-H FUNCTIONALIZATION IN NON-AROMATIC AZAHETEROCYCLES. AN EFFECTIVE APPROACH IN THE DESIGN OF PROMISING MOLECULES FOR MEDICINAL CHEMISTRY

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C(sp²)-H Functionalization has proven as a convenient PASE (pot, atom, step economy) strategy in medicinal chemistry to design target organic molecules of various architectures. Particularly, these transformations can be applied to modify non-aromatic azaheterocyclic systems by means of creating novel C-C and C-N bonds following metal-free nucleophilic substitution of hydrogen SNH (Scheme 1), transition metal-mediated cross-dehydrogenative coupling (CDC) reactions (Scheme 2), as well as radical-mediated cross-dehydrogenative coupling (CDC) reactions (Scheme 3) [1-4].

Scheme 1. Nucleophilic substitution of hydrogen reactions according to «Addition-Oxidation» SNH(AO) and «Addition-Elimination» SNH(AE) protocols

Scheme 2. Transition metal-mediated cross-dehydrogenative coupling (CDC) reactions

M = Transition metal (Pd, Ni, Cu, etc.)

Scheme 3. Metal-free radical-mediated cross-dehydrogenative coupling (CDC) reactions

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