Synthesis of 3-trifluoromethylpyrazoles via 1,3-dipolar cycloaddition reactions and subsequent oxidative aromatization of cycloadducts derived from trifluoroacetonitrile imines

Greta Utecht-Jarzyńska,[a] Anna Kowalczyk,[a,b] Kamil Świątek,[a,b] Grzegorz Mlostoń,[a] Marcin Jasiński*[a]

[a] Faculty of Chemistry, University of Lodz, Tamka 12, Łódź, 91403, Poland. http://www.chemia.uni.lodz.pl/doctors/jasinski/; mjasinski@uni.lodz.pl.

[b] The University of Lodz Doctoral School of Exact and Natural Sciences, Banacha 12/16, 90237 Łódź, Poland.

Trifluoromethylated pyrazoles are considered as privileged structural motifs for drug discovery and for this reason, they received great attention in the last two decades [1]. In search for CF_3-synthons useful for preparation of the title heterocycles we turned to trifluoroacetonitrile imines **A**, which can be *in situ* generated through base-mediated dehydrohalogenation of the respective hydrazonoyl precursors [2]. Subsequently, these reactive 1,3-dipoles can easily be trapped with such dipolarophiles as thiocarbonyl compounds and alkenes as well as with some bifunctional agents to give five- or six-membered N-heterocyclic products [3]. More importantly, in certain cases subsequent aromatization of the initially formed (3+2)-cycloadducts, e.g. pyrazolines, can be fully controlled, *e.g.* by the type of solvent used, leading to products possessing different substitution patterns. Our recent results related to exploration of nitrile imines **A** for preparation of 3-trifluoromethylated pyrazoles and mechanisms of the studied reactions, will be summarized and discussed.

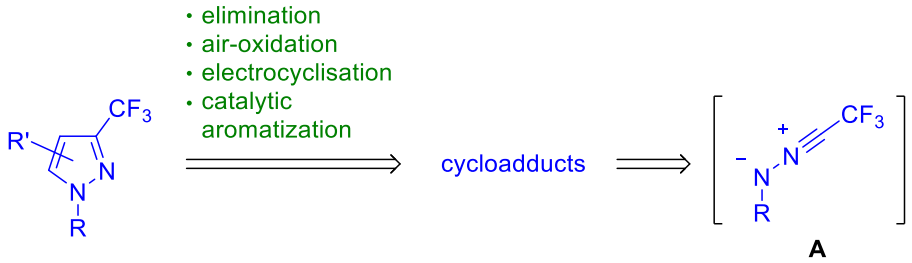

Figure 1. Selected strategies leading to 3-trifluoromethylpyrazoles discussed in the paper.

Acknowledgement: This work has been supported by the University of Lodz in the framework of the IDUB program (M.J.; grant no. 3/IDUB/DOS/2021)

References:

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