

CATALYTIC C—C/C—H ACTIVATION RELAY: SYNTHESIS OF NAPHTHOQUINOLIZINIUM SALTS FROM 1-AZABIPHENYLENE

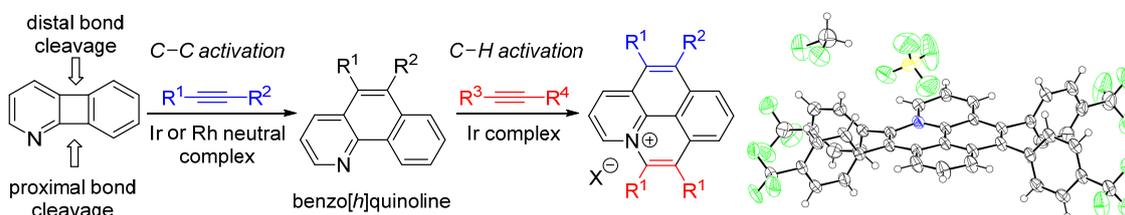
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Catalytic C—C and C—H bond activations followed by further transformations are interesting and useful tools in organic synthesis. The activation of the C—C bond via oxidative addition in compounds containing strained rings like 1-azabiphenylene with non-equivalent C—C bonds in the cyclobutane ring (the proximal or distal C—C bond with respect to the position of the nitrogen atom) may lead to formation of regioisomeric intermediates. These upon π -unsaturated substrates give rise to regioisomeric products.

In our group we have developed a new complementary method for the preparation of substituted benzo[*h*]- and benzo[*f*]-quinolines [1]. This was achieved by using different catalytic systems (a cationic Rh complex or neutral Ir or Rh complexes) able to cleave selectively either the proximal or the distal bond. DFT calculations were carried out and provided useful information on the origin of regioselectivity. Benzo[*f*]quinolines were then used as substrate for the C—H bond activation and preparation of a series of highly fluorescent naphthoquinolizinium salts [2]. The fluorescence emission maxima were highly dependent on the substitution pattern spanning from ~420–660 nm and could be tuned by appropriate substituents.



[1] Frejka, D.; Ulč, J.; Kantchev, E. A. B.; Císařová, I.; Katora, M. *ACS Catal.* **2018**, 10290–10299.

[2] Ulč, J.; Jacko, J.; Císařová, I.; Nečas, D.; Katora, M. *Unpublished results.*