PHOTOCATALYST-FREE TRANSFORMATIONS OF PYRAZOLO[1,2-*a*]PYRAZOLONES

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In recent years, organic photochemical reactions initiated by visible light have gained considerable popularity. Despite many advancements, employment of external photocatalyst is often required for the photochemical transformation because of the limited ability of organic molecules to absorb visible light.[1] As an alternative, photocatalyst-free processes have been presented recently, representing an efficient method for carbon-carbon and carbon-heteroatom bond formation without the need for an external photocatalyst, metal, or redox agent.[2,3] Since they operate under mild reaction conditions and exhibit a broad functional group tolerance, developing novel photocatalyst-free transformations still remains highly desirable.

In this work, we present novel photocatalyst-free visible-light-induced transformations of pyrazolo[1,2-*a*]pyrazolones. Due to their significant biological importance and absorption in the range of 290-500 nm our, the selected substrates proved to be valuable starting materials for the synthesis of various 3D-rich products, including sterically hindered scaffolds, which are otherwise challenging to prepare using conventional methods. Our method enables easy scale-up using a continuous flow regime and exhibits compatibility with various functional groups. As it does not rely on an external photocatalyst, it represents a cost-effective and environmentally friendly approach to synthesizing various potentially valuable products.

KEY WORDS: photocatalyst-free transformations, bond cleavage, visible light, pyrazolo[1,2-*a*]pyrazolones, environmentally friendly

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