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## **Synthesis of Aza-Aromatic Compounds by Photocyclodehydrogenation Reaction of N-Aryl Imines**

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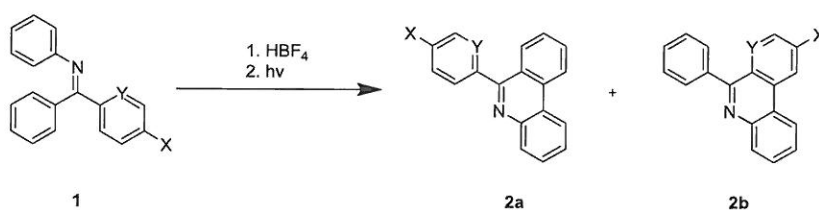
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# Synthesis of Aza-Aromatic Compounds by Photocyclodehydrogenation Reaction of *N*-Aryl Imines

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Photocyclodehydrogenation reaction of stilbene-like molecules is one of the most important methods of synthesis of polyaromatic compounds such as carbohelicenes, heterohelicenes and phenacenes<sup>1</sup> which are promising materials for usage in optoelectronics (OLED, OFET). Incorporation of nitrogen atom to their structure could benefit from enhanced solubility and ability to make complex with transition metals. Unlike stilbenes, few examples of photocyclization of imines are published in the literature<sup>2</sup> with disadvantages of low yields and the requirement to use strong acid as solvent. We found out that a salt of the *N*-phenyl-benzophenone imine (1) and tetrafluoroboric acid (HBF<sub>4</sub>) is readily converted after irradiation to 6-phenylphenanthridines (2) (Scheme 1). Various substituted asymmetrical benzophenone imines 1 (X = H, F, Cl, Br, Me, OMe, NO<sub>2</sub>; Y = CH, N) were prepared to determine regioselectivity of reaction (isomers 2a or 2b). The gained knowledge will be used for preparing of more complex polyaromatic molecules.



Scheme 1. Photocyclodehydrogenation reaction of *N*-aryl imines

## References

1. Gingras, M. *Chem. Soc. Rev.* **2013**, 42, 968–1006.
2. a) Badger, G. M.; Joshua, C. P. *Tetrahedron Lett.* **1964**, 5, 3711–13.  
b) Thompson, C. M.; Docter S. *Tetrahedron Lett.* **1988**, 29, 5213–16.  
c) Danilenko, N. I.; Fomenko, T. V.; Korobeinicheva, I. K.; Gerasimova, T. N.; Fokin, E. P. *Bull. Acad. Sci. SSSR, Div. Chem. Sci.* **1980**, 29, 1149–1154.