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Preparation of a New Helically Chiral Flavin as a Possible Photocatalyst

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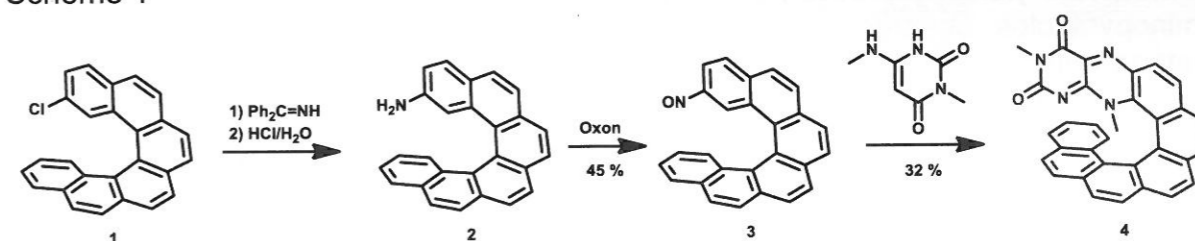
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Flavins are well known photoactive compounds, which were previously employed as catalysts and photocatalysts in various types of reactions, i.e. oxidations¹ or [2+2] photocycloadditions². Introduction of a chiral selector might induce enantioselectivity in reactions of suitable prochiral substrates. In this case, helicenes are used not only as chiral selectors, but also for its interesting optical properties.

Main goal of this work was to explore synthetic pathways leading to preparation of a new helically chiral Flavohelicene **4**. Crucial precursor, 2-amino[6]helicene **2**, was prepared by Buchwald-Hartwig amination reaction of 2-chloro[6]helicene with benzophenone imine under microwave irradiation and subsequent hydrolysis of the formed imine. Its oxidized nitroso species **3** underwent the final condensation to form the targeted Flavohelicene **4**. Several photochemical and electrochemical properties were also measured to determine the application potential of the compound **4**.

Scheme 1



1. König, B., Ed. *Chemical Photocatalysis*; 2013.
2. Mojr, V.; Svobodova, E.; Strakova, K.; Nevesely, T.; Chudoba, J.; Dvorakova, H.; Cibulka, R. *Chem. Commun.* **2015**, 51 (60), 12036–12039.