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New organic fluorophores derived from diketopyrrolopyrrole (DPP)

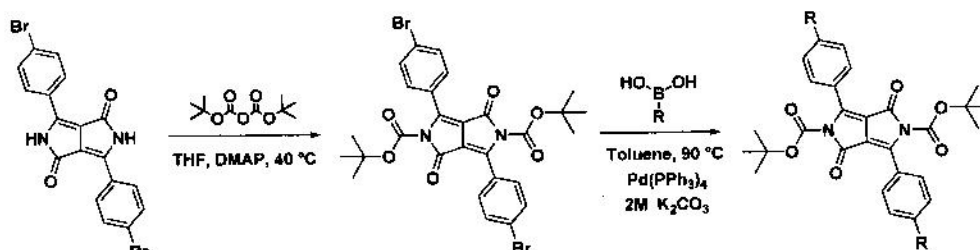
**R. Beninato,^a G. Borsato,^a V. Lucchini,^a
F. Fabris,^b E. Zendri^a**

^a Department of Environmental Sciences, Ca' Foscari University of Venice, Dorsoduro 2137, I-30123, Venice.

^b Department of Chemistry, Ca' Foscari University of Venice, Dorsoduro 2137, I-30123, Venice.

e-mail: riccardo.beninato@unive.it

Diketopyrrolopyrrole (DPP) is the parent molecule of a vast class of organic high performance pigments (HPP), reported in the literature for the first time in 1974. Nowadays DPP compounds comprise a number of bright and stable orange-red coloured pigments, widely used in industrial paintings. The research is intended to functionalize diketopyrrolopyrrole in order to create new compounds useful in specific technical and artistic applications. Firstly, our aim concerns the tuning of optical properties of DPP through a *p*-phenyl functionalization in order to obtain a novel class of organic pigments that should exhibit fluorescent features and supramolecular properties at the same time. Appropriate substituents introduced via *Suzuki-Miyaura* cross-coupling modulate DPP conjugation and thereby bring a bathochromic or ipsochromic shift of the absorbed wavelengths. Another aspect of the research concerns the conversion of DPP into a soluble molecule (dye), so that can be used as a latent pigment. After application in its soluble form, the pigment is regenerated by heat or UV-light, leading to a more stable, uniform and in depth application. Efforts focused on a reversible *N*-functionalization of the DPP lactamic functions with specific photolabile protecting groups.



*Protection of the amidic functions and Suzuki-Miyaura cross-coupling between *p*-Br-DPP-BOC and suitable boronic acids.*

References

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