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FROM NATURAL CHROMOPHORES TO ORGANIC DYES: EXPLORING THE CHEMISTRY OF *C*- AND *N*-SUBSTITUTED PHENAZINES

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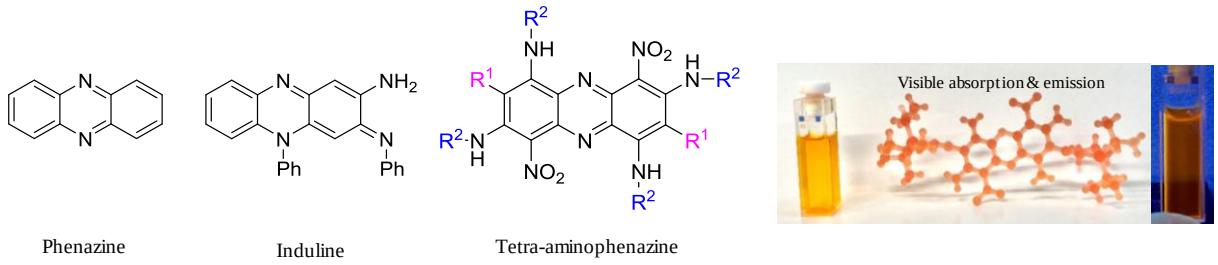
With applications ranging from biology[1,2] to optoelectronics,[3] phenazine derivatives are solidly established as a family of chromophores worth investigating, from the point of view of the synthetic routes[1,4]. The particular backbone structure consisting of two aromatic rings fused to a pyrazine core, resulting in a stable, planar and a fully conjugated aromatic π-system renders these molecules with highly attractive and easily tunable features.

In the field of phenazine chemistry, numerous synthetic methodologies have been already developed and are being currently investigated to control the nature and position of the functional group which is dictating the desired properties. Successfully combining various key features into a final structure requires adapting or even establishing of a new design strategy.

During our study, we have developed an unexpected and straightforward methodology that allows the efficient synthesis of nitrogen- and carbon-substituted phenazines, the nature of the substituents being easily tunable. Moreover, the introduction of triisopropylsilyl (TIPS) group opens a way for further post-functionalization via classic cross-coupling reactions. The obtained derivatives present attractive optical properties that could be further developed for organic electronics applications such as optical sensing or photovoltaics.



Phenazine Induline Tetra-aminophenazine

Figure 1: Phenazine structures and new substituted derivatives.

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