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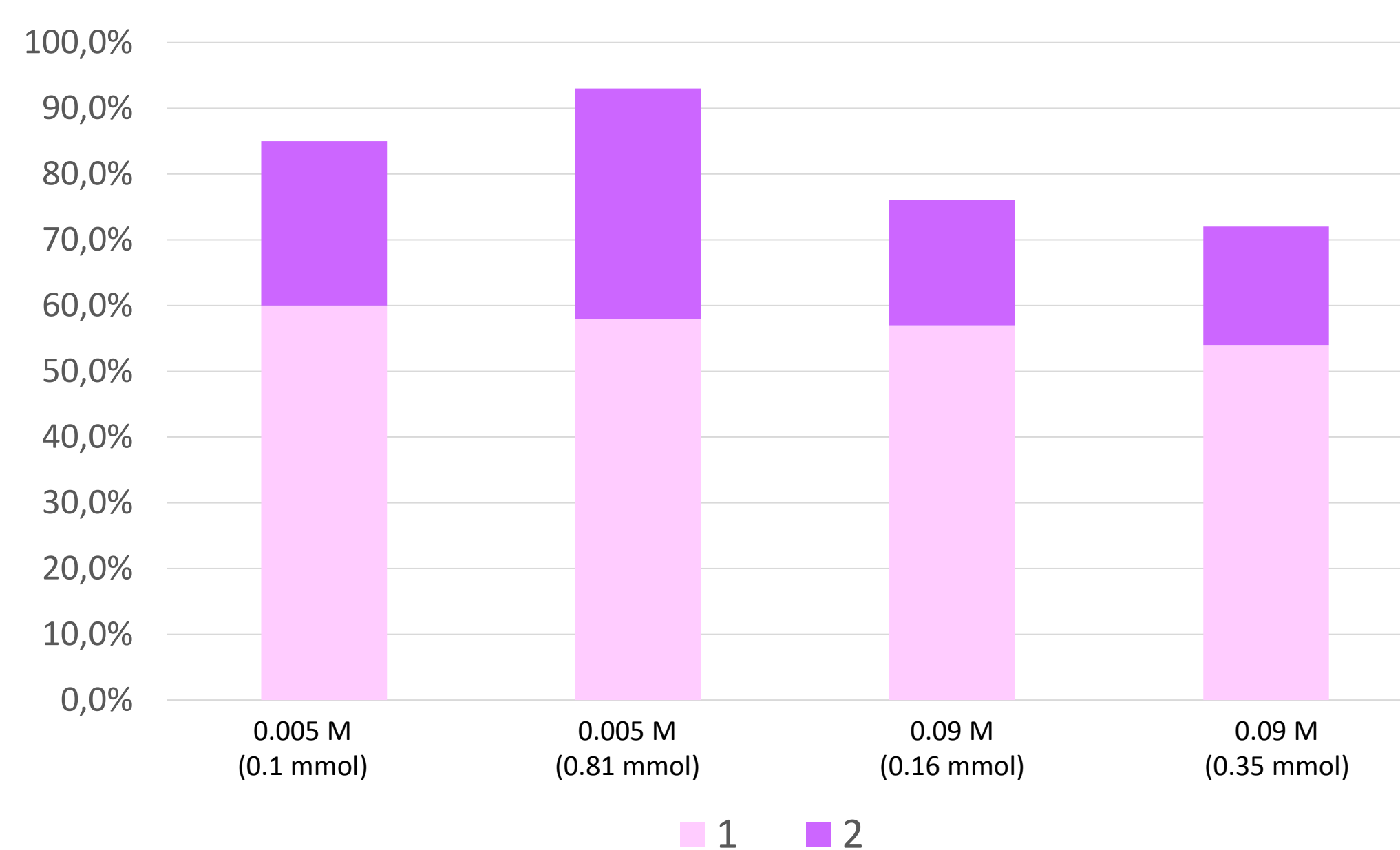
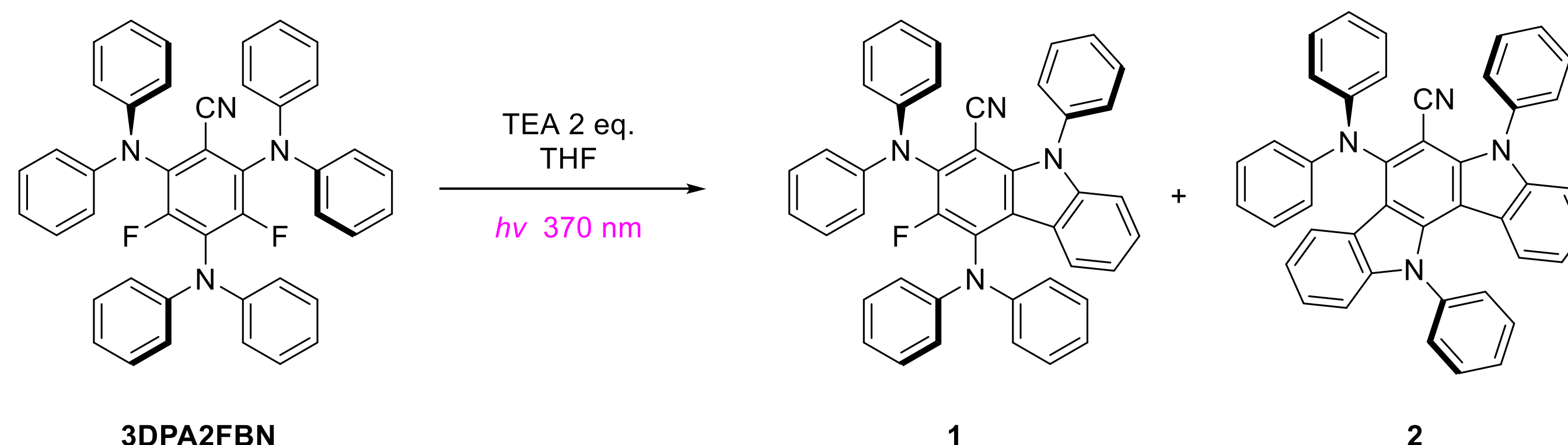
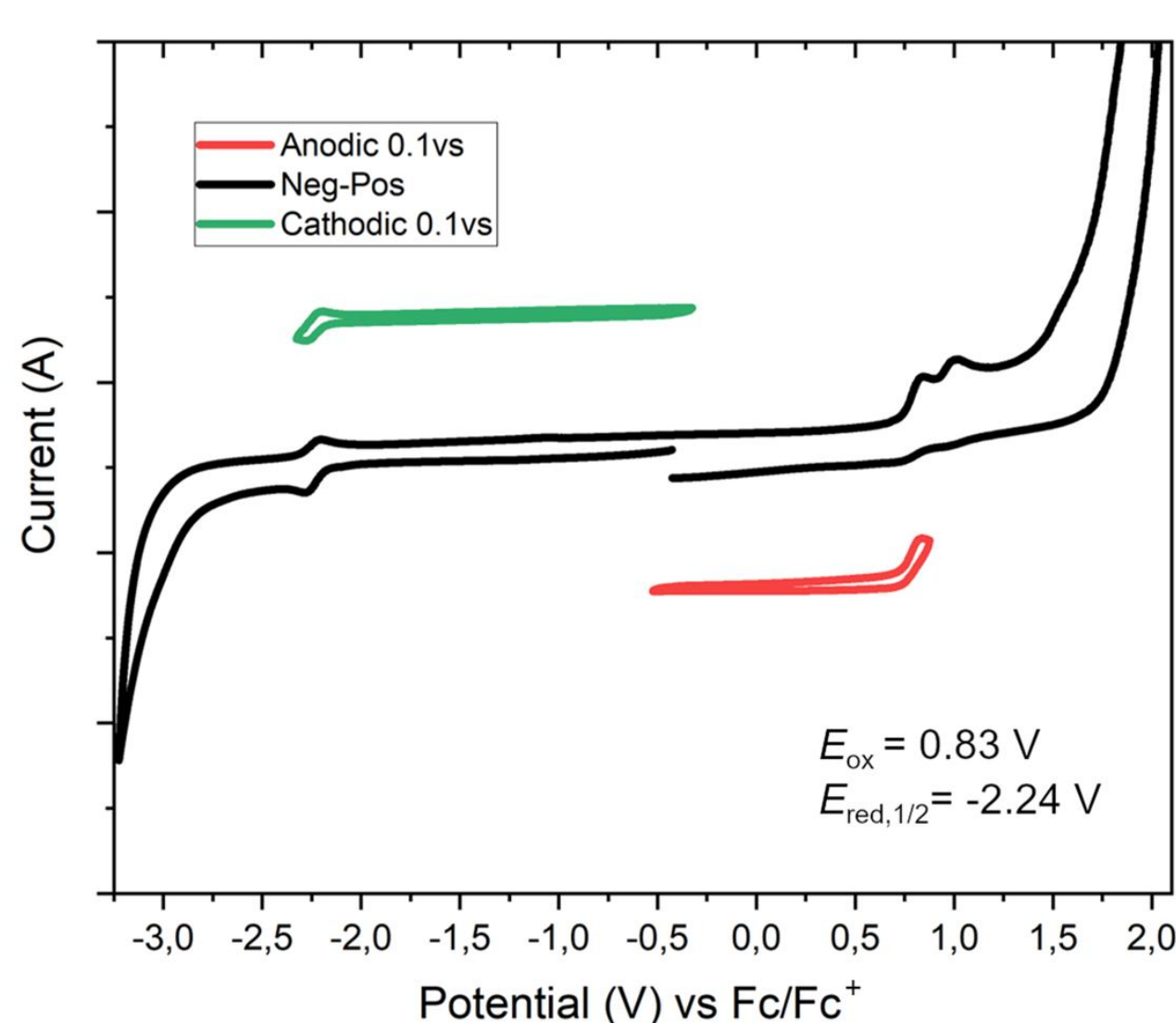
Introduction

One of the best performing donor-acceptor cyanoarene photocatalyst, commercially available **3DPA2FBN**,^{1,2} when irradiated, produces two by-products, identified by HPLC-MS analysis as deriving, respectively, from loss of one and two HF molecules.³

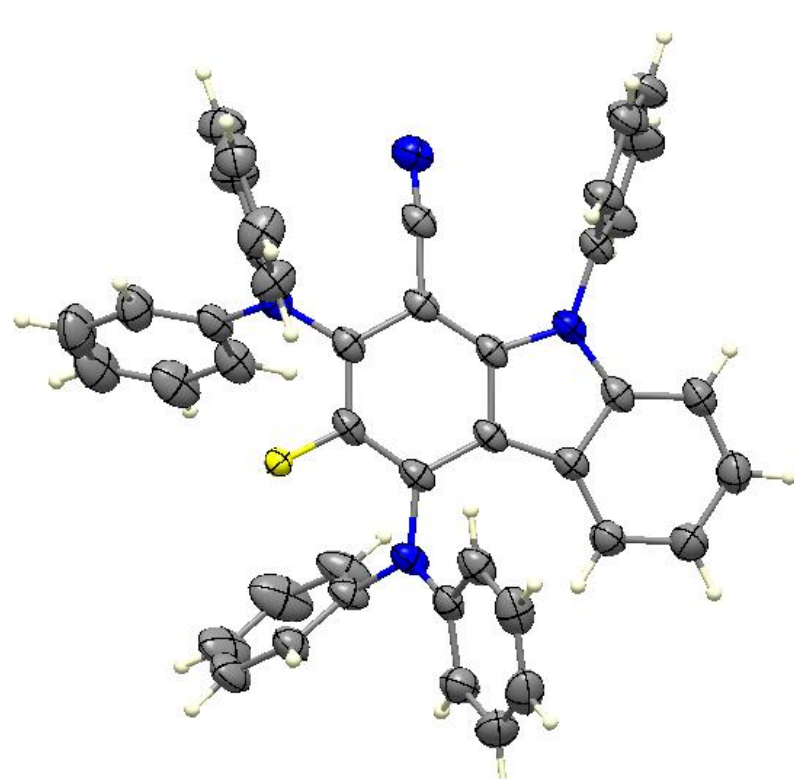
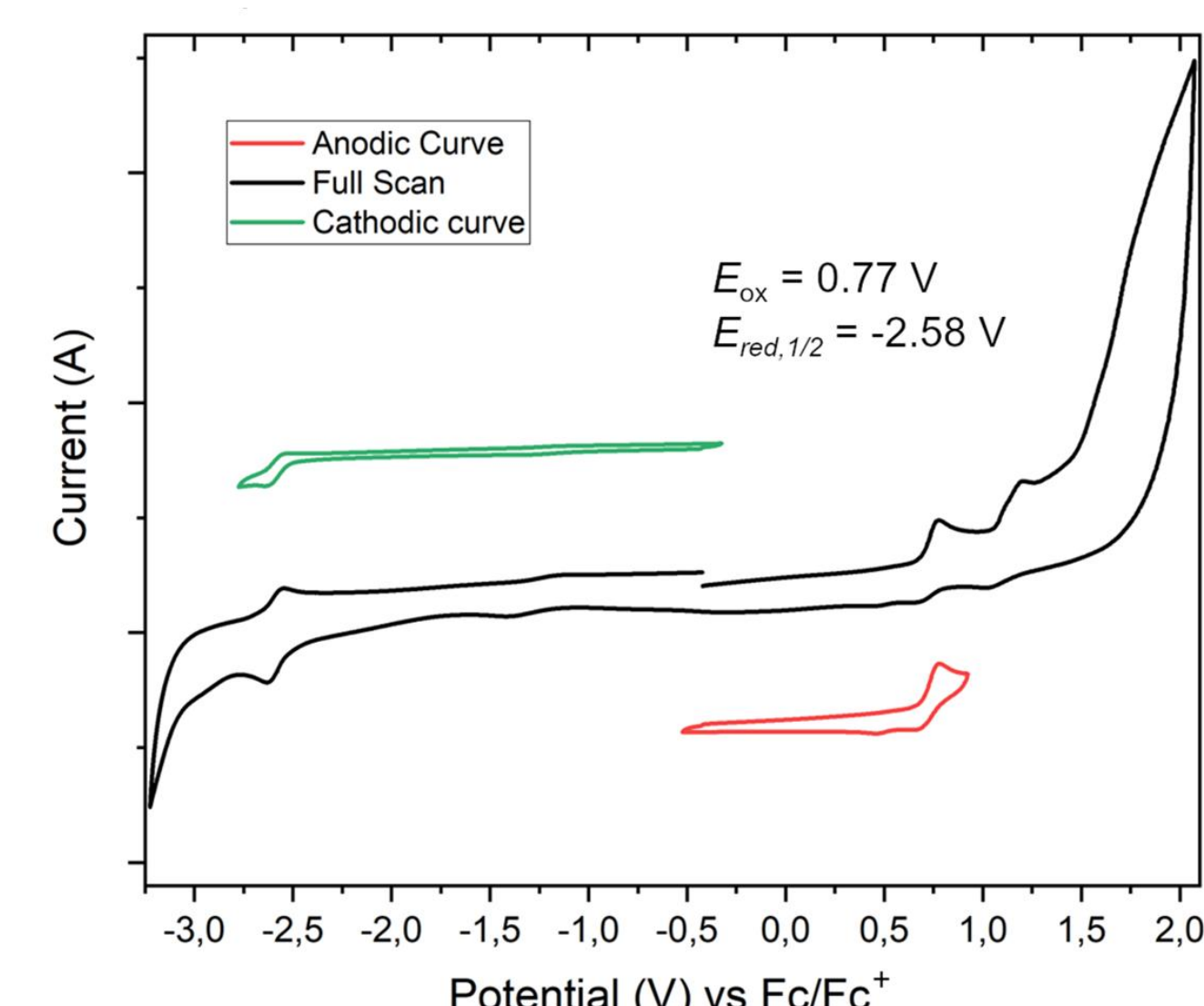
In this work, we successfully isolated the two products (**1** and **2**) as single regioisomers and assessed an optimized method to synthesize them.

NMR and XRD studies fully elucidated the structures of these products. The photophysical properties of **1** and **2** were determined by electrochemical and spectroscopic techniques. Their catalytic activity was preliminarily assessed in suitable photocatalyzed reactivities.

Mono-cyclized product 1



Bis-cyclized product 2

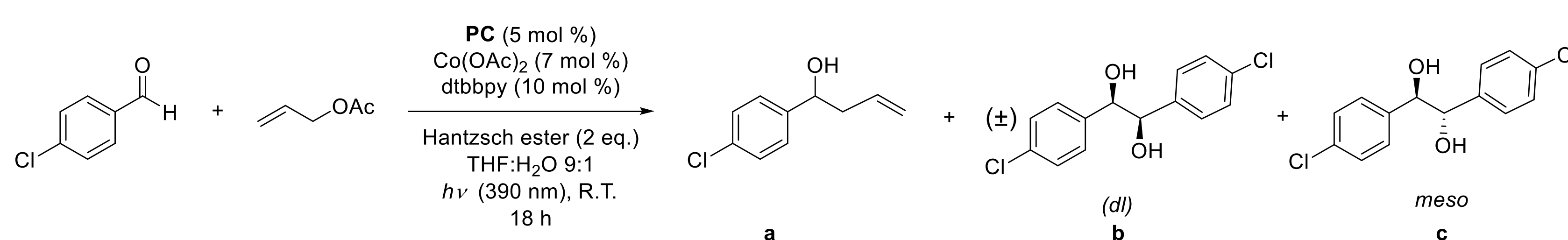
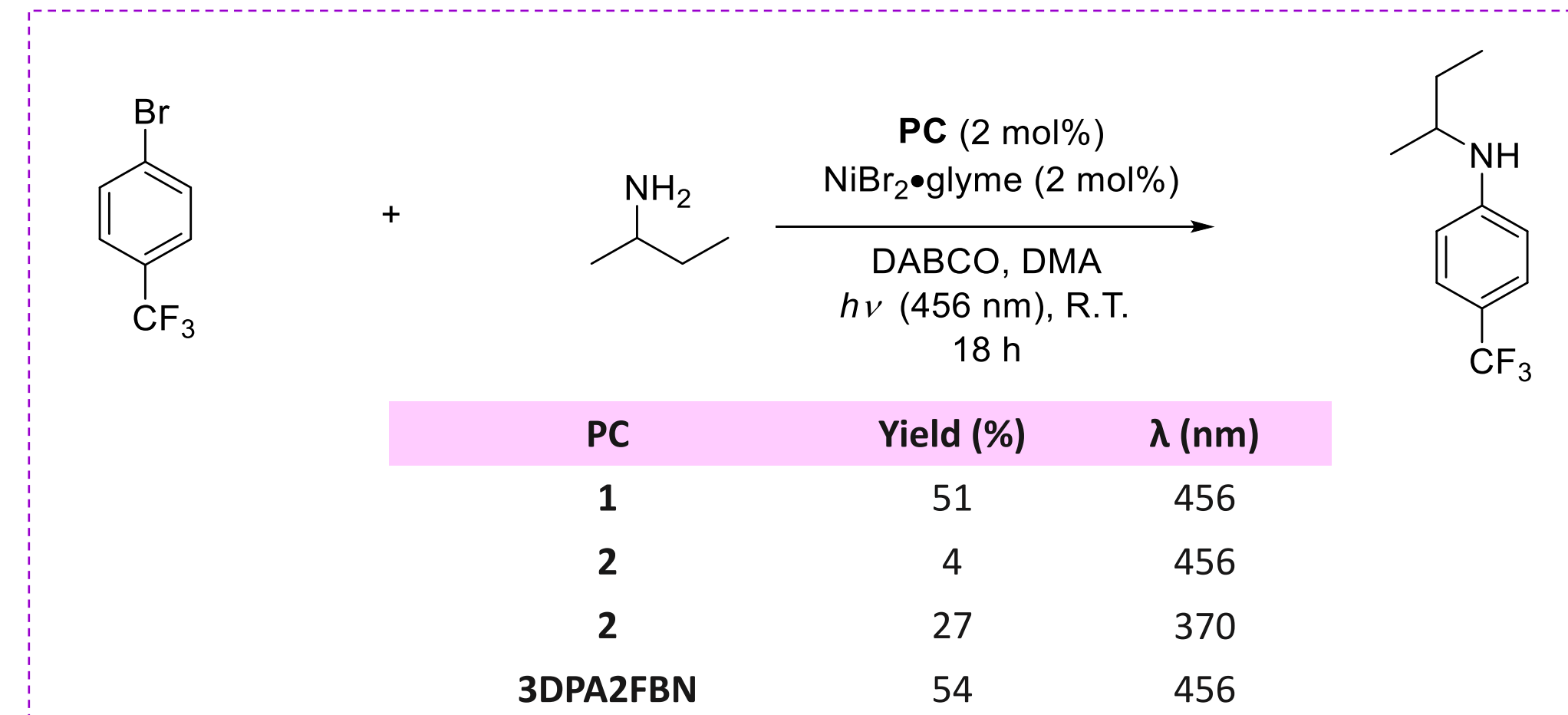
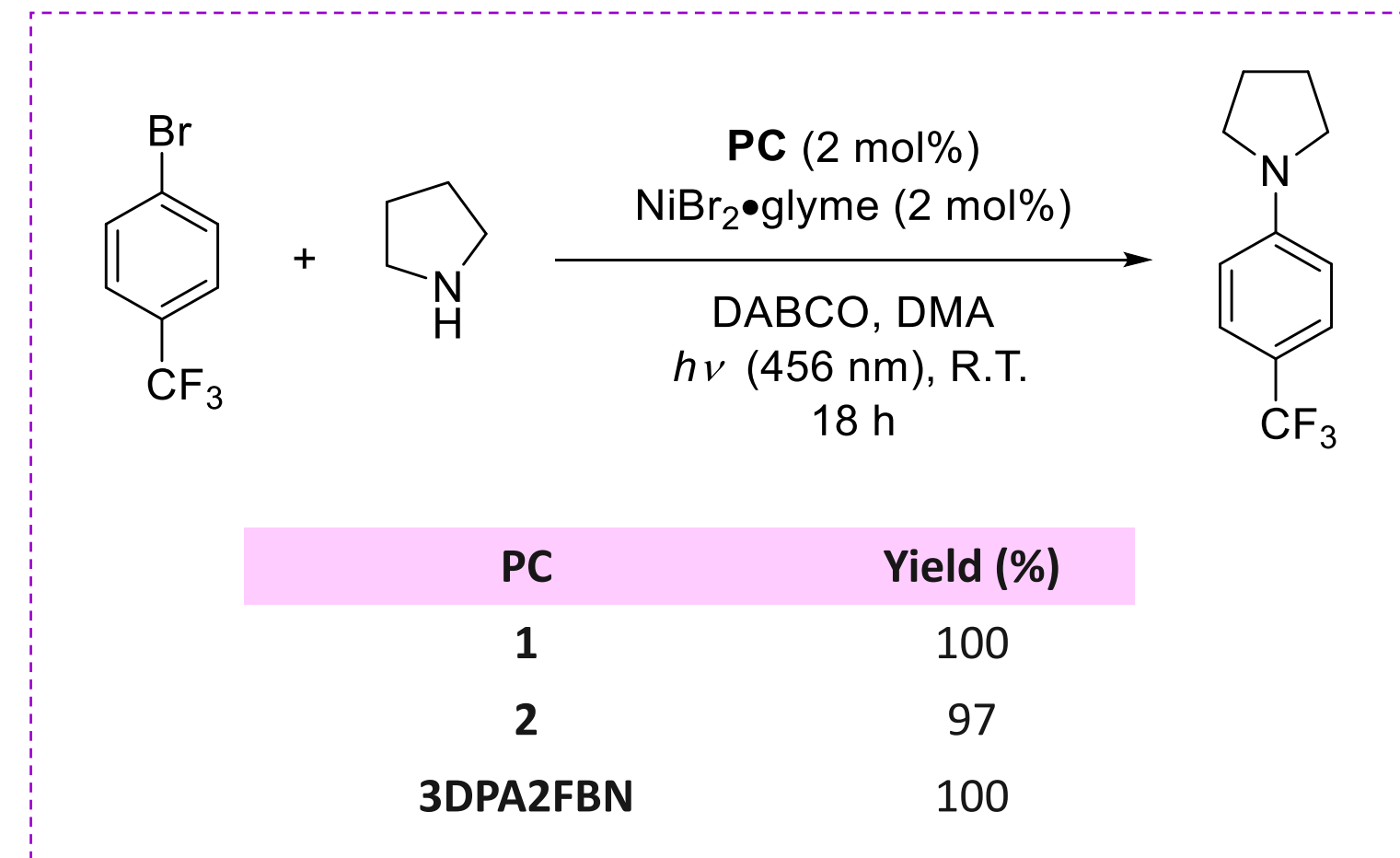
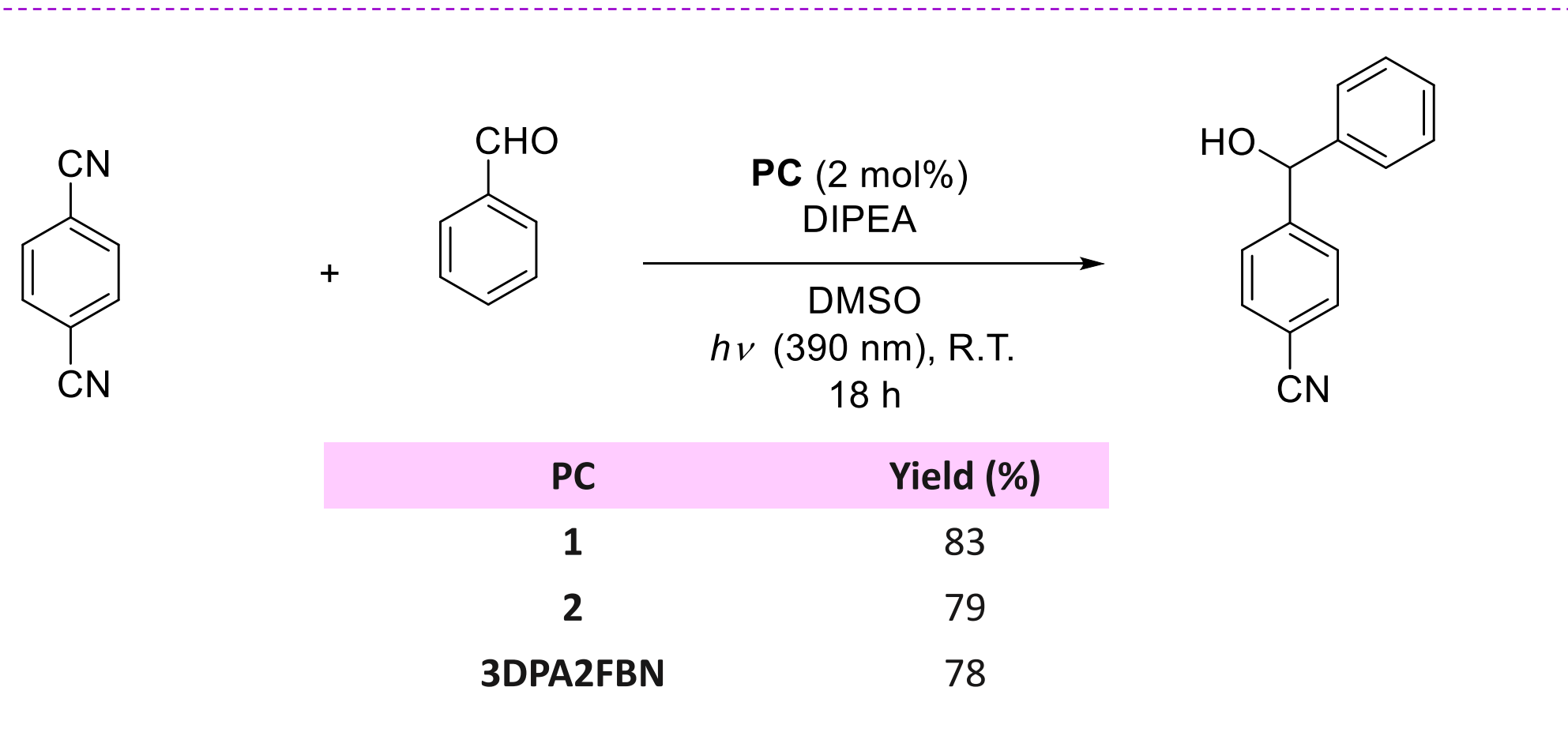
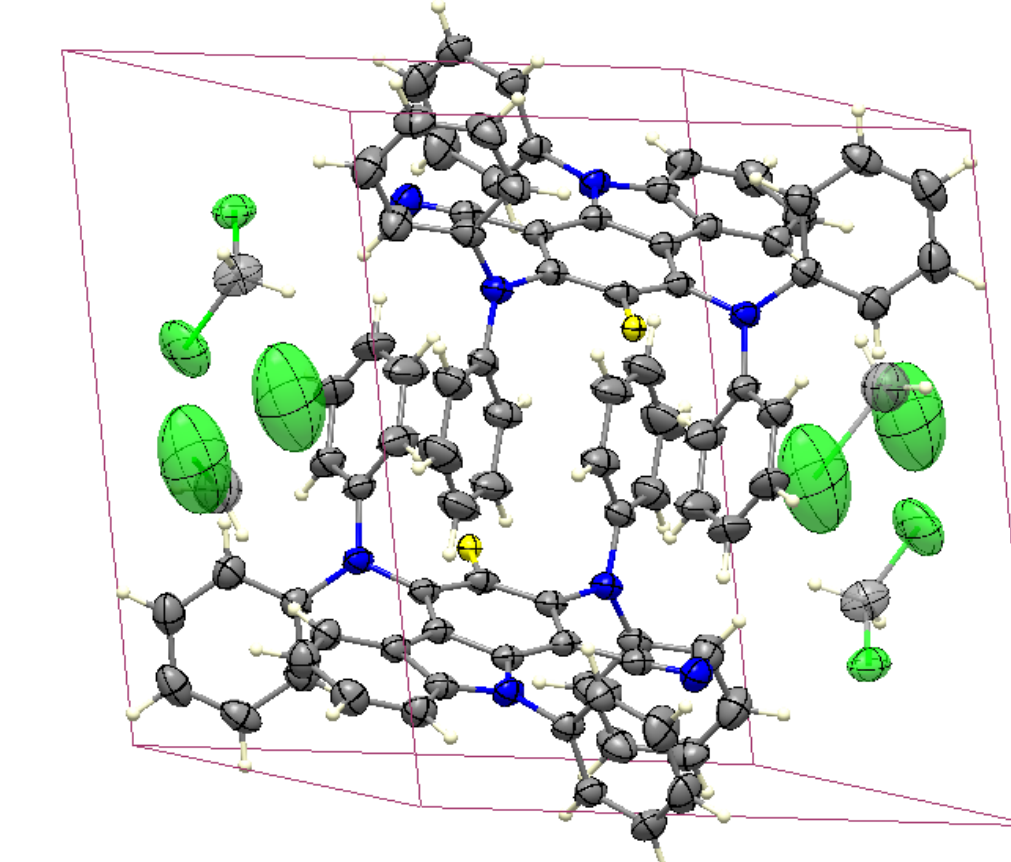
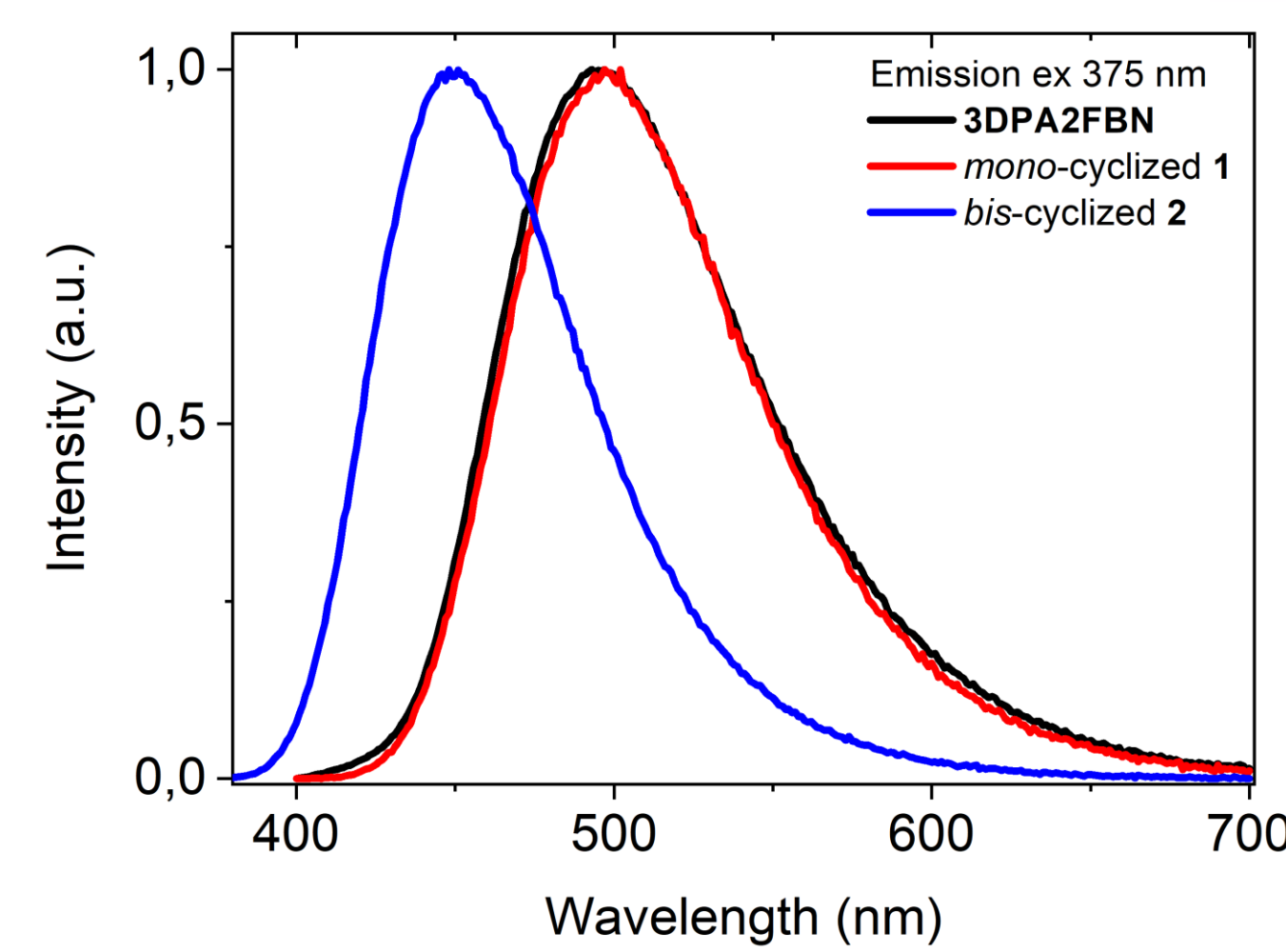
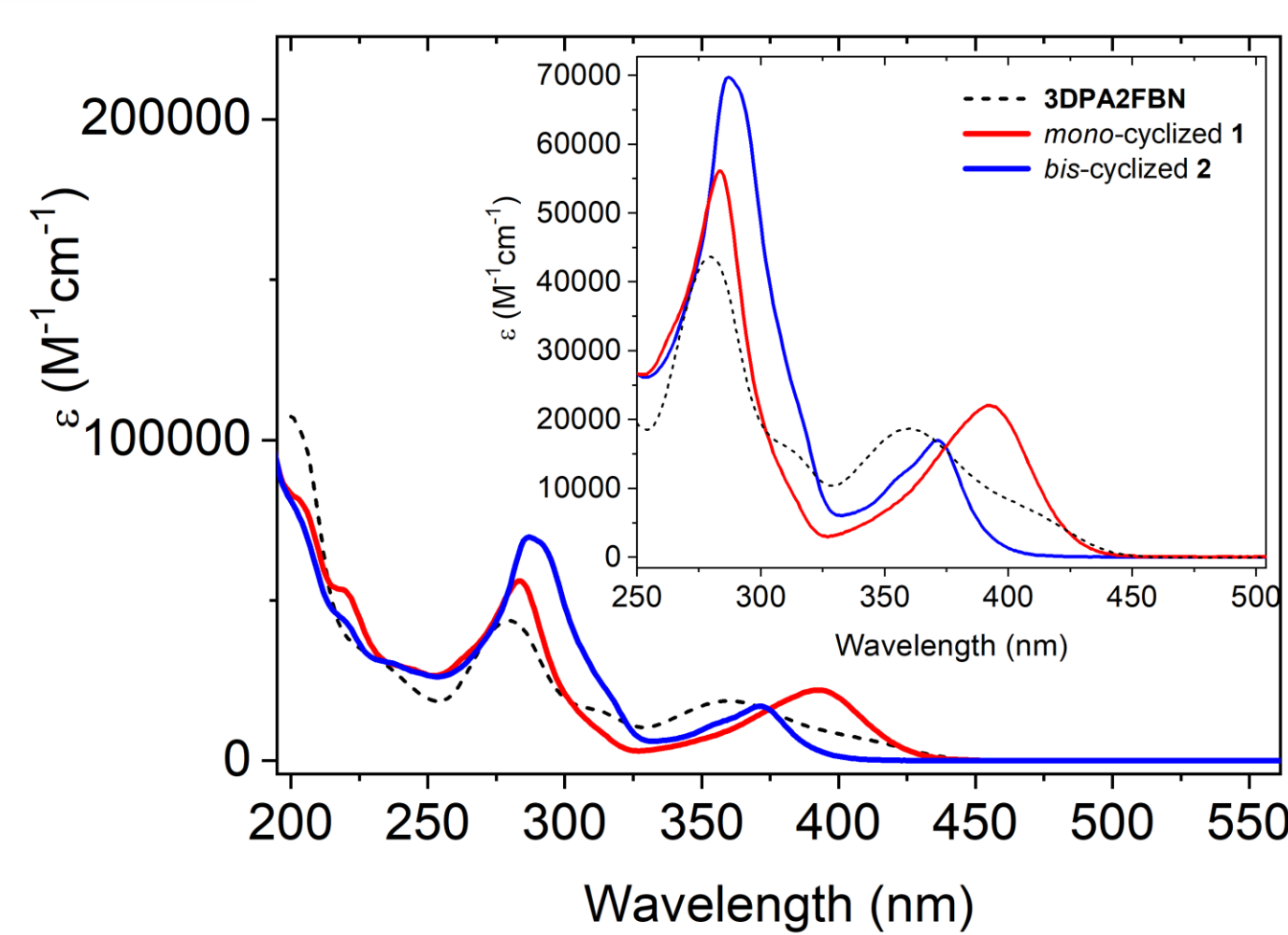
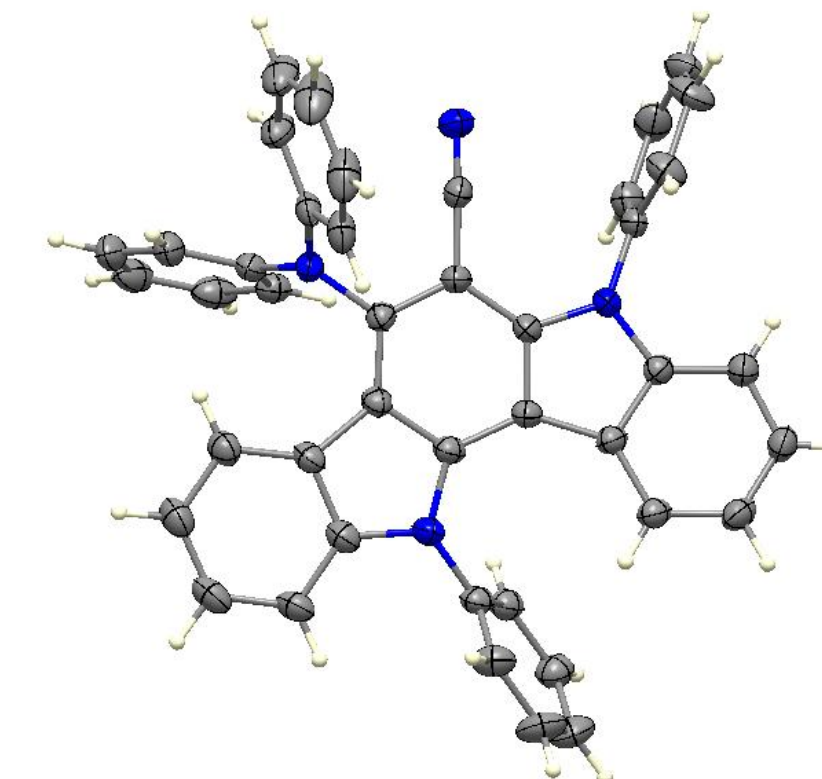


Potential (vs SCE)

| | |
|--------------------------------------|---------|
| E(PC ⁺ /PC) | 1.22 V |
| E((PC/PC ⁻)) | -1.85 V |
| E(PC ⁺ /PC ⁻) | 1.01 V |
| E(PC ⁺ /PC [*]) | -1.64 V |
| $E_{0,0}^{S^1}$ | 2.86 eV |

Potential (vs SCE)

| | |
|--------------------------------------|---------|
| E(PC ⁺ /PC) | 1.16 V |
| E((PC/PC ⁻)) | -2.19 V |
| E(PC ⁺ /PC ⁻) | 0.91 V |
| E(PC ⁺ /PC [*]) | -1.94 V |
| $E_{0,0}^{S^1}$ | 3.10 eV |



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