Electrochemical Synthesis of Azaoxa[7]helicenes via Oxidative Hetero-coupling/Dehydrative Cyclization Sequence of Arenols

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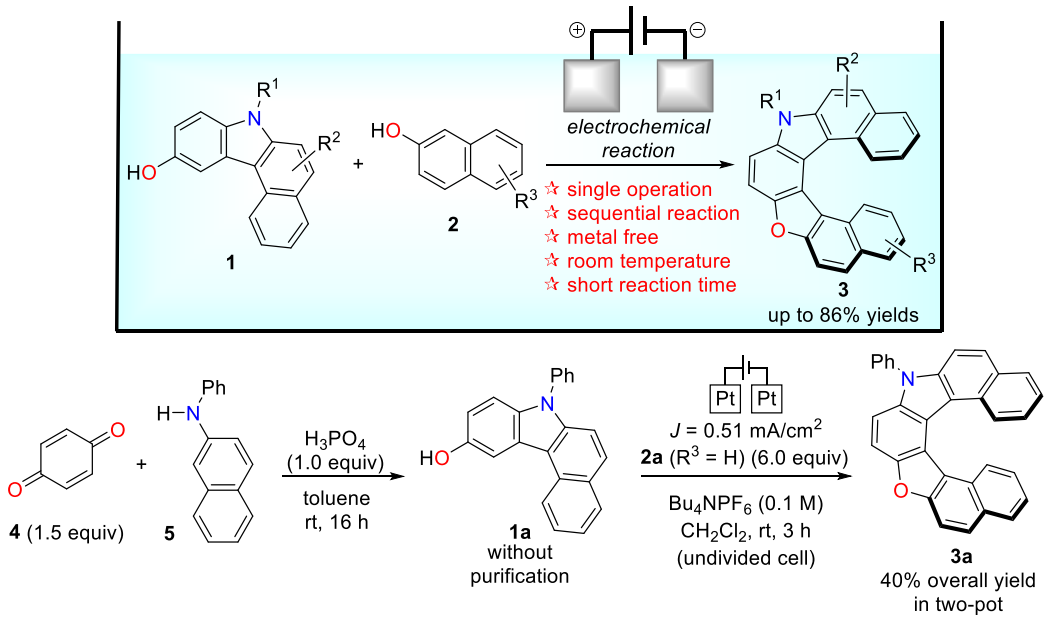
Helicene derivatives represent a unique category of molecular systems with high potential to be implemented in various areas such as asymmetric catalysis, molecular machines, and materials science.[1] Although various successful strategies were introduced to afford helicenes,[2,3] there are many calls for the development of an efficient, low-cost, highly selective, and environmentally benign strategy to overcome the limitations in current methodologies.

Herein, we report the first synthesis of helicenes using arenol as a starting material in electrochemical oxidation sequence. A single electrochemical operation led to an oxidative hetero-coupling and dehydrative cyclization to afford azaoxa[7]helicenes (**3**) in up to 86% yield. In this presentation, a two-pot synthesis of the helicene (**3a**) from *p*-benzoquinone (**4**), *N*-phenyl-2-naphthylamine (**5**) and 2-naphthol (**2a**) which are commercially available starting materials will also be discussed.



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