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Helicene-based Thioureas

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Helicenes are compounds of great potential in various fields including organocatalysis,¹ thanks to their inherent chirality and significant rigidity of their structure. Despite generally good results, the amount of publications in this area of helicene chemistry is limited.²

The main goal of this work was to introduce the helicene moiety into the structure of bis(aryl)thiourea, to prepare a new type of a helicene-based organocatalyst. Several aryl(helicenyl)thioureas were synthesized so far. Their ability to form hydrogen-bond complexes with various types of substrates was verified using NMR and the activity of the catalysts is currently being explored.

Since the enantioselective organocatalysis requires use of enantiomerically pure compounds, the methodology for resolution of the starting material, 2-amino[6]helicene, was also explored.

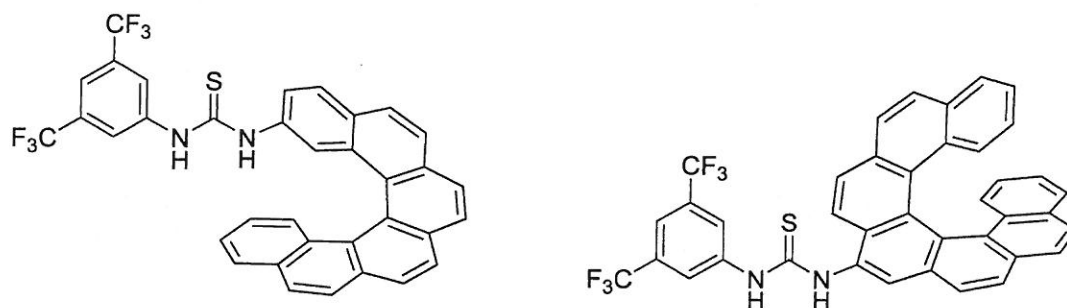


Fig. 1: Structures of some of the prepared helicene based thioureas.

References

1. Gingras, M. *Chem. Soc. Rev.* **2013**, *42*, 1051–1095.
2. Aillard, P.; Voituriez, A.; Marinetti, A. *J. Chem. Soc., Dalton Trans.* **2014**, *43*, 15263–15278.