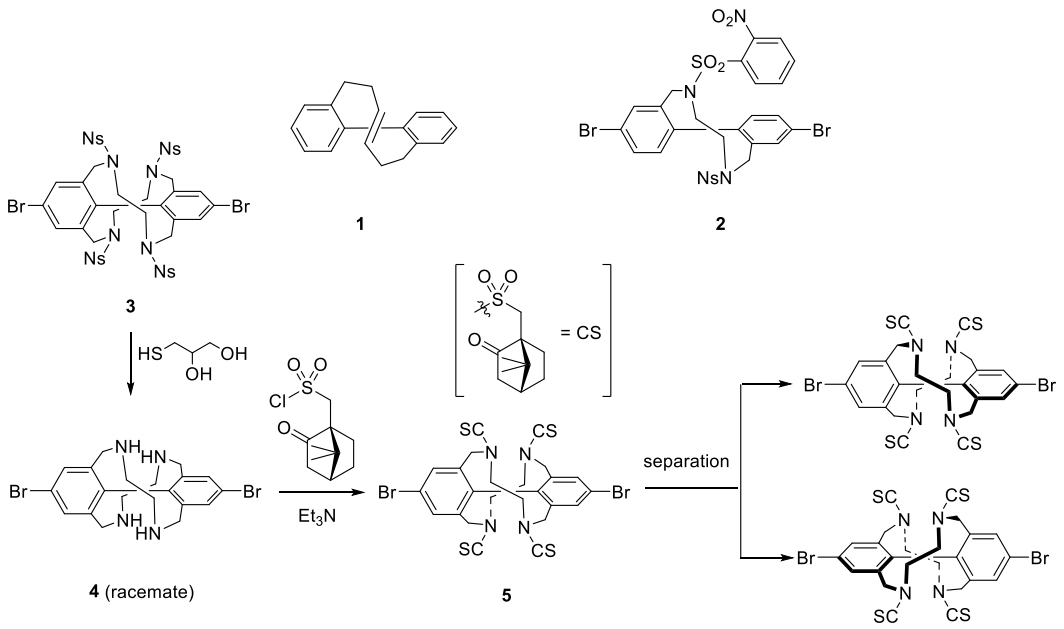
Optical resolution of winding vine-shaped biphenyl with molecular asymmetry

([1]*Department of Chemical Science and Engineering, Kobe University*, [2]*Research Center for Membrane and Film Technology, Kobe University*) ○ Aruto Maruka,[1] Kohei Tabuchi,[1] Kentaro Okano,[1] Atsunori Mori[1,2]

Keywords: Molecular asymmetry; Optical resolution; Winding vine-shaped biphenyl

We have been engaged in the synthesis and properties of winding vine-shaped (hetero)biaryls, showing molecular asymmetry.[1] However, preparation of such a molecule as an enantiomerically pure form has only been successful by the HPLC separation with a chiral column. We have recently reported the synthesis of winding vine-shaped biphenyl derivatives **1** and **2**, which also showed molecular asymmetry and was successfully separated by HPLC with chiral column.[2] We herein report that chromatographic resolution of winding vine-shaped biphenyl **3**, which possess ethylenediamine moieties, is achieved by leading to the diastereomeric camphorsulfonamide.

Removal of the nosyl (2-nitrobenzenesulfonyl: Ns) group of **3** was carried out with thioglycerol and the obtained seconary amine **4** was isolated as a HCl salt. Treatment of **4** with (+)-camphorsulfonyl chloride in the presence of triethylamine afforded the corresponding camphorsulfonamide **5**, which was separated by silica gel column chromatography. The separation of the related diastereomer derived from **2** was also performed in a similar manner to that of **3**.



1) Mori, A. *Bull. Chem. Soc. Jpn*. **2020**, *93*, 1200. 2) Hayashi, M.; Cheng, J.; Hosokawa, K.; Hatta, T.; Wang, C.; Horie, M.; Okano, K.; Mori, A. *Eur. J. Org. Chem.* **2021**, *24,* 3465.