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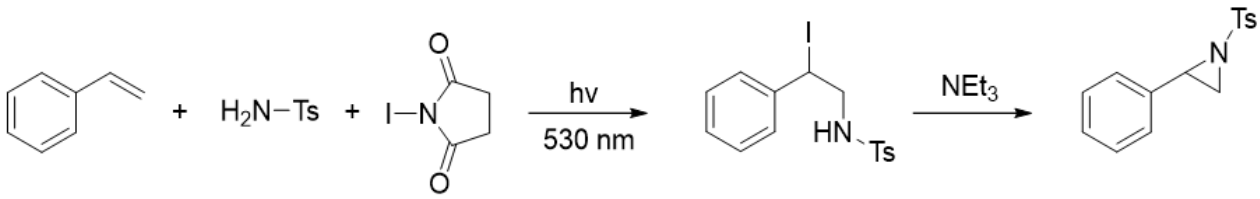
Visible Light induced Iodo-Amination of Styrenes with NIS/Tosylamide – Cyclization to Aziridine



Summary

Iodo-Amination with green Light at 25 °C under magnetic stirring in Dimethylcarbonat, cyclization to N-Tosyl aziridine.

Equipment

Item #	Description
8053 000 100	XELSIUS Basic Unit, Software Version: 2.44
8053 000 201	Reflux Condenser Module
8053 000 202	HV Vials Starter Kit, 1 - 30 ml
8053 000 401	Photochemistry Research Kit

Chemicals

	Description
0,5 mmol	Styrene CAS: 100-42-5
0,5 mmol	*N*-Iodosuccinimid (NIS) CAS: 516-12-1
0,5 mmol	Tosylamid CAS: 70-55-3
3 mg	K_2CO_3
2 ml	Dimethylcarbonat CAS: 616-38-6
2 mmol	Triethylamine CAS: 121-44-8

Methode

Visible light induced Iodoamination at 25 °C under magnetic stirring (1300 rpm), followed by cyclization to N-Tosyl aziridine Add 0.5 mmol NIS, 0.5 mmol Tosyamid and 3 mg K2CO3 into the vessel. Purge the vessel with inert gas (nitrogen).

Add 2 ml of 0.25 M solution of styrene in degassed Dimethylcarbonat via a syringe. Start stirring for 5 min at 25 °C, then switch on the light source (530 nm). After 2 h switch off the light source, add 2 mmol NEt3 and stir for 1 h at 40 °C.
Evaporate all volatiles and purify the residue by column chromatography on silica using a mixture of EtOAc – hexanes (1 : 5) as eluent to afford the aziridine as white solid.

References:

S. Engl, O. Reiser Catalyst-Free Visible-Light-Mediated Iodoamination of Olefins and Synthetic Applications, Org. Lett. 2021, 23, 5581-5586, DOI: 10.1021/acs.orglett.1c02035.

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