InI₃-Catalyzed Synthesis of Thioethers Using Thiosilanes

**Significance:** Herein, the authors disclose an indium triiodide catalyzed substitution of the acetoxy group in various alkyl acetates using thiosilanes. This method successfully converts various primary, secondary and tertiary alkyls, as well as propargylic, allylic and benzylic systems into the appropriate thioethers with a high functional group tolerance.

**Comment:** The corresponding thioethers are obtained in good to excellent yields. In the case of primary alkyl acetates and α-acetoxy carbonyl derivatives, substitution is supposed to proceed via an S_N2 reaction, whereas benzylic, allylic, propargylic and secondary or tertiary alkyl acetates are substituted by an S_N1-type mechanism.

**Selected examples:**

- \( \text{R-OAc} \) to \( \text{R-SPh} \) up to 90% yield

\( \text{R} = \) (un)saturated aliphatics, aryl carbonyls, adamantyl, OMe-, Cl- and CO₂Et-substituted benzyl, heterobenzyl, propargyl, ferrocene groups

**Key words**

- indium
- thiosilanes
- thioethers
- alkyl acetates

**SYNFACTS Contributors:** Paul Knochel, Nadja M. Barl

**SYNFACTS**

Category: Metal-Mediated Synthesis

Published online: 19.06.2012

DOI: 10.1055/s-0031-1291166; Reg-No.: PI06412SF

© Georg Thieme Verlag Stuttgart · New York