New selective synthesis of 1,2-disubstituted ferrocenyl ligands

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Diorganosilyl sulfides R_2SiS react with *N,N*-diisopropyl 2-(chloromercuri)ferrocenecarboxamide leading selectively to *N,N*-diisopropyl 2-(chlorodiorganosilyl)ferrocenes in good yields.

General methods of the preparation of chiral 1,2-disubstituted ferrocenyl ligands involve directed *ortho* metallation of monosubstituted ferrocenes – an earlier report[10] described the synthesis of (chlorodiorganostanyl)ferrocenes by treatment of diorganotin sulfides R_2SnS with chloromercuriferrocenes. We now report that (chlorodiorganosilyl)ferrocenyl ligands can be obtained by chloromercuration of *N,N*-diisopropyl ferrocenecarboxamide followed by treatment of the obtained *N,N*-diisopropyl 2-(chloromercuri)ferrocenecarboxamide with diorganosilyl sulfides R_2SiS (Scheme 1).

Treatment of *N,N*-diisopropyl ferrocenecarboxamide **5** under the classical conditions of chloromercuration allowed the unprecedented access to *N,N*-diisopropyl 2-(chloromercuri)ferrocenecarboxamide **6** which reacts with diorganosilyl sulfides R_2SiS allowing the unprecedented access to products **7a** and **7b**, respectively in good yield (Table 1).

Techniques used: 1NMR, IR, MS, microanalysis

Schemes: 3

References:11

Table 1 Treatment of N,N-diisopropyl 2-(chloromercuri)ferrocenecarboxamide **6** with R_2SiS

R_2SiS	Product	Yield %	m.p./°C
Me_2SiS	**7a**	64	128–122
Ph_2SiS	**7b**	72	165–167

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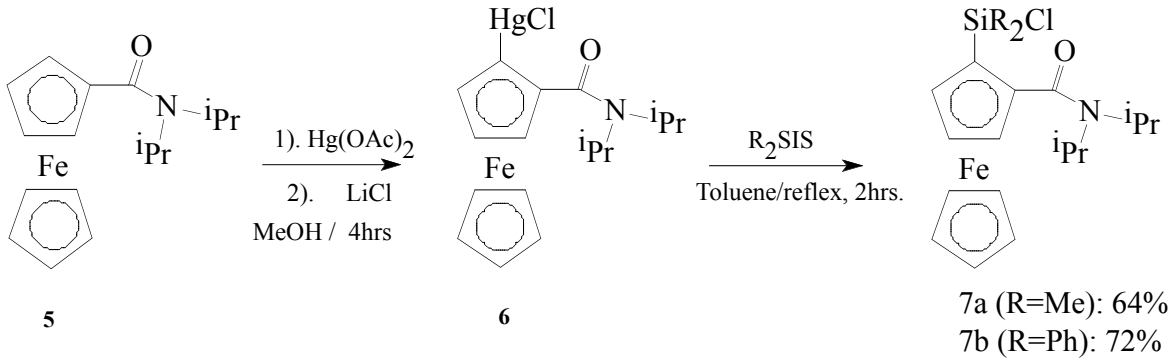

Scheme 1 *Step one: N,N*-diisopropyl ferrocenecarboxamide (2 mmol), mercuric acetate (2 mmol), MeOH (10 ml)/ reflux/ 2 hours, 60%. *Step 2:* R_2SiS (1 mmol), *N,N*-diisopropyl 2 (chloromercuri)ferrocenecarboxamide **6** (1 mmol), toluene (10 ml)/ reflux 2 hours.

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