Organometallic pyridylphenylene dendrimers with ferrocene units

Elena S. Serkova, Aleksandr A. Chamkin, Zinaida B. Shifrina
A.N. Nesmeyanov Institute of Organoelement Compounds of Russian Academy of Sciences, Moscow, Russia
E-mail: elena.serkova@ineos.ac.ru

The use of metallocdendrimers has been well studied, with significant applications in catalysis, molecular electronics and sensing [1,2]. Herein, we report the synthetic route to pyridylphenylene dendrimers with ferrocene units (Scheme) through the Diels-Alder cycloaddition. The syntheses exploit multiple cycloadditions to form a $G_{n-1}$ dendrimer with ethynyl terminal groups and final Diels-Alder reaction with specially designed ferrocenyl-containing cyclopentadienone that result in the target dendrimer.

The dendrimer structure was confirmed by NMR spectroscopy. MALDI-ToF mass spectrometry and SEC analysis were employed to prove the purity and monodispersity of dendrimers synthesized.

Scheme. Chemical structure of $G_1$ and $G_2$ dendrimers with ferrocene terminal units.

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