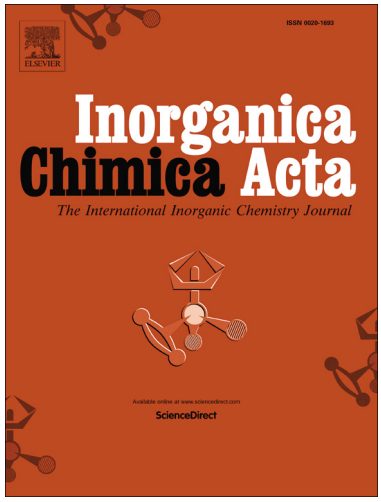

Research paper

Synthesis of novel bifunctional organosilicon dendrons via platinum-catalyzed hydrosilylation

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Synthesis of novel bifunctional organosilicon dendrons via platinum-catalyzed hydrosilylation

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Abstract: The synthesis of novel bifunctional organosilicon dendrons has been successfully achieved. The synthetic route is based on sequential platinum-catalyzed hydrosilylation reactions, that efficiently leads to the corresponding carbosilane dendrons containing a wide range of functional groups, such as $–OSiMe_3$, -Cl, -F and -COOCR. Finally, the core of these dendrons comprises reactive alkoxy groups that can be further used for grafting in various materials.

Keywords: hydrosilylation; platinum; dendrons; silanes; alkoxysilanes; synthetic methods

1. Introduction

Dendrons and dendrimers make an interesting class of compounds [1]. Their names come from the Greek word for tree. The molecules of these compounds resemble tree branches and have a unique three-dimensional molecular architecture connected to attractive properties like high degree of arrangement and multifunctionality [2–13]. In this respect, they are eye-catching and marketable for high-end sectors of the biochemical industry [14–19]. What is more, they play a significant role as the supports for the catalysts [20–23] and as the connectors between organic and inorganic species (hybrid materials) [24,25]. Alkoxysilanes are chemicals with several applications. Their use for silanization of various materials still is an active area of research . The formation of strong covalent bonds to different materials surfaces offers lots of advantages for many biochemical applications [26]. On the other hand, hydrosilylation is one of the most important synthetic methods for derivatization of organosilicon compounds [27–33]. It is compatible with atom economy strategy and widely used in industry. It provides simple pathway to a wide range of pharmaceuticals and fine-chemicals .