Synthesis of new organosilicon building blocks with conjugated C-C bonds *via* hydrosilylation of buta-1,3-diynes

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Functional reagents containing conjugated double (C=C) and triple (C≡C) carbon-carbon bonds play an important role in modern synthetic chemistry since they can provide common motifs present in many natural products or drugs with a broad spectrum of biological activity.[1-3] The hydrosilylation of buta-1,3-diynes enables the synthesis of such building blocks in various environments and with diverse functionalization. It is a straightforward and 100% atom-economic method involving the addition of a Si-H bond to the C≡C bond.[4-6] Depending on the catalyst, the reagents, their concentrations, ratios, and the process conditions, silylated 1-en-3-ynes, 1,3-dienes, allenes, polymers, or cyclic compounds can be formed, often as a complex mixture of products. The possibility of synthesizing a wide range of products from the same set of reagents is one of the greatest advantages of the hydrosilylation process. However, the exclusive formation of a single product is the biggest challenge and can only be achieved by the use of appropriate, highly selective catalysts. Moreover, the organosilanes are characterized by low cost and toxicity, high chemical stability, and the structural diversity of the products.

In the communication, I will present a highly selective and efficient synthesis of but-1-en-3-ynes and buta-1,3-dienes *via* Pt-catalyzed hydrosilylation of symmetrically and non-symmetrically substituted buta-1,3-diynes.[7-8] Further modification of obtained (*E*)-1,2,4-trisilylbut-1-en-3-ynes through protodesilylation, halodesilylation, hydrosilylation, and Pd-based cross-coupling reactions will also be presented. These compounds represent new families of organosilicon building blocks which are perfect models for the investigation of the reactivity of one silyl group in the presence of another.

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