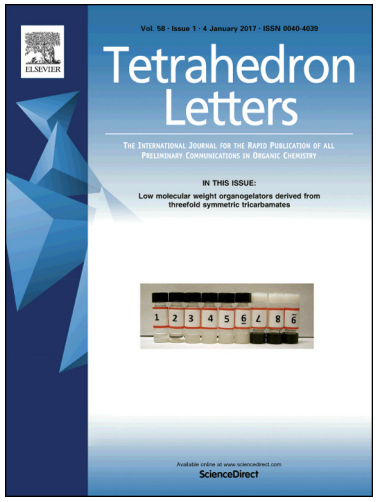

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PII: S0040-4039(17)30354-4
DOI: http://dx.doi.org/10.1016/j.tetlet.2017.03.057
Reference: TETL 48758

To appear in: *Tetrahedron Letters*

Received Date: 26 January 2017
Revised Date: 14 March 2017
Accepted Date: 17 March 2017

Please cite this article as: D'yakonov, V.A., Kadikova, G.N., Nasretdinov, R.N., Kolokol'tsev, D.I., Dzhemilev, U.M., Titanium-Catalyzed [6π+2π]-Cycloaddition of Si-containing Alkynes to *bis*(1,3,5-Cycloheptatriene-7-yl)alkanes, *Tetrahedron Letters* (2017), doi: http://dx.doi.org/10.1016/j.tetlet.2017.03.057

Titanium-Catalyzed [6π+2π]-Cycloaddition of Si-containing Alkynes to *bis*(1,3,5-Cycloheptatriene-7-yl)alkanes

Vladimir A. D'yakonov,[*,a] Gulnara N. Kadikova,[a] Ramil N. Nasretdinov,[a] Dmitry I. Kolokol'tsev,[a] Usein M. Dzhemilev[a]

Institute of Petrochemistry and Catalysis, Russian Academy of Sciences, 141 Prospekt Oktyabrya, Ufa, 450075, Russian Federation

Abstract: The reaction between Si-containing alkynes and bis(1,3,5-cycloheptatriene-7-yl)alkanes in the presence of the two-component catalyst $Ti(acac)_2Cl_2$-Et_2AlCl, led to the selective formation of mono- and bis-adducts - {9-[4-(2,4,6-cycloheptatrienyl)alkyl]-8-alkyl(phenyl)bicyclo[4.2.1]nona-2,4,7-triene-7-yl}(trimethyl)silanes and bis(7-trimethylsilyl-8-alkyl(phenyl)bicyclo[4.2.1]nona-2,4,7-triene-7-yl)alkanes in 78-86% yield. The structures of the obtained cycloadducts were confirmed by ^{1}H and ^{13}C NMR spectroscopy.

Keywords*:* Homogeneous catalysis, *bis*(1,3,5-cycloheptatriene-7-yl)alkanes, titanium, cycloaddition, alkynes, bicyclo[4.2.1]nona-2,4,7-trienes.

Cycloaddition reactions are among the most versatile tools for the construction of various carbo- and heterocyclic systems, including carbocycles and complex polycyclic compounds with numerous chiral centers.[1] A special role in the synthesis of polycyclic hydrocarbons belongs to the reactions based on homo- and co-dimerization of cyclic polyenes (1,3,5-cycloheptatrienes, 1,3,5,7-cyclooctatetraenes, 1,3,5-cyclooctatrienes) catalyzed by transition metal compounds.[2] Notably, 1,3,5-cycloheptatriene and its derivatives are promising monomers for the synthesis of important bi-, tri-, and polycyclic compounds.[3]

Considerable contributions to the development of synthetic routes towards 1,3,5-cycloheptatriene-based cycloadducts were made by various research groups,

[*] Corresponding author. e-mail addresses: DyakonovVA@rambler.ru, *DyakonovVA@gmail.com*.