Supporting Information
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Metallic Samarium Promoted Self-Coupling of Baylis-Hillman Adduct to the Functionalized 1,5-Hexadienes in the Presence of I$_2$/ClCO$_2$Et/BiCl$_3$ System

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Experimental Section:

General: The $^1$H NMR spectra were recorded on Brucker AC – 500 (500 MHz) spectrometer and $^1$C NMR spectra were measured with Brucker AC – 125 spectrometer. EI-MS were determined with a Agilent 5975N mass spectrometer. IR spectra were taken as KBr discs with a Bruck vector 22 spectrometer. Elemental Analyses were performed on a Vario EL III element analyzer. Melting points were obtained on a Fisher-Johns apparatus without correction. Chemical yields referred to pure isolated product. Purification of products was accomplished by column chromatography packed with silica gel. Unless otherwise stated, all reagents were commercially purchased and used without further purification.

General procedure for the synthesis of 1,5-hexadiene 2:

To a stirred solution of 1.5 mmol Sm powder and 2 mmol ClCO$_2$Et in 15 mL THF, 5 mol % BiCl$_3$, 5 mol % I$_2$ and 1 mmol Baylis-Hillman adduct 1 were added. The resulting mixture was then allowed to reflux in the air. Until completion of the reaction, 3 mL HCl (1 M) was then added to quench the reaction and the mixture was successively exacted with EtOAc (20 mL×2). The organic phase was washed with 15 mL saturated brine, dried over anhydrous Na$_2$SO$_4$, filtered. The solvent was removed under reduced pressure to give the crude products, which were purified by column chromatography using ethyl acetate and petroleum ether (1:20) as eluent.