radical cascade polyprenylated acylphloroglucinol

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Biomimetic Total Synthesis of (±)-Garcibracteatone

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Total Synthesis (±)-Garcibracteatone

Significance: Garcibracteatone (K) is the structurally most complex polycyclic polyprenylated acylphlorogucinol natural product that has so far been isolated. The four-step total synthesis presented makes use of a biomimetic radical cascade reaction to build up four rings in one transformation. Additionally, the previously unknown relative stereochemistry at C-5 was assigned.

Comment: Precursor F for the key transformation is synthesized from phloroglucinol A in three steps by Friedel-Crafts acylation followed by subsequent diprenylation and alkylation with (±)-lavandulyl iodide (E). Oxidation of F by using Mn(OAc)₃-Cu(OAc)₂ initiates a radical cascade, which ultimately leads to the formation of the natural product garcibracteatone K (14% yield) along with its C5-epimer L (8% yield). This key transformation constructs four rings and five stereocenters.

 $\textbf{SYNFACTS Contributors:} \ Erick \ M. \ Carreira, \ Stefan \ Diethelm$ Synfacts 2013, 9(1), 0001 Published online: 17.12.2012 DOI: 10.1055/s-0032-1317856; Reg-No.: C02812SF