

First Total Synthesis of the Cytotoxic Carbazole Alkaloid Excavatine-A and Regioselective Annulation to Pyrano[2,3-a]carbazoles and [1,4]Oxazepino[2,3,4-jk]carbazoles

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Abstract

© 2017 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim We describe the first total synthesis of the cytotoxic carbazole alkaloid excavatine-A. The carbazole framework was constructed through double C-H bond activation of a diarylamine by using our palladium(II)-catalyzed oxidative cyclization. Treatment of the intermediate 8-hydroxycarbazoles with prenal and different additives led either to pyrano[2,3-a]carbazoles or to [1,4] oxazepino[2,3,4-jk]carbazoles. The pyran annulation was investigated to determine the influence of substitution pattern, additives, and reaction time on the selectivity.

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Keywords

Alkaloids, Carbazoles, Oxazepines, Palladium, Total synthesis

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