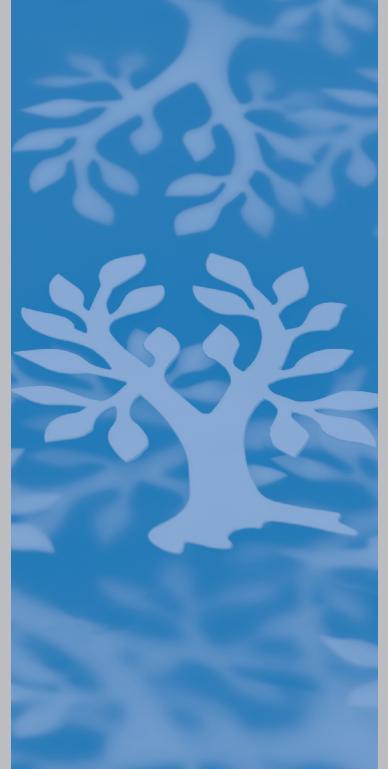
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SYNFACTS Highlights in Current Synthetic Organic Chemistry

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Regioselective One-Pot Synthesis of Triptycenes via Triple-Cycloadditions of Arynes to Ynolates *Angew. Chem. Int. Ed.* **2017**, *56*, 1298–1302.

Three Benzynes and the Ynolate

Substrate scope:

Entry	R	Х	Conditions	Yield (%)
1	Ме	Н	Α	42
2	<i>i</i> -Pr	Н	Α	35
3	<i>n</i> -Bu	Н	Α	52
4	<i>t</i> -Bu	Н	Α	39
5	Ph	Н	Α	27
6	Me	OMe	В	69
7	<i>i</i> -Pr	Н	Α	39
8	<i>n</i> -Bu	OMe	В	48
9	Hex	OMe	В	37
10	Ph	Н	Α	37

Conditions

A: 1 (6 equiv), then n-BuLi (4 equiv) addition over 1 h B: 1 (4 equiv), then n-BuLi (4 equiv) addition over 5 min, $-20~^{\circ}\mathrm{C}$

30% yield

Significance: The triptycene structure is a remarkable scaffold that is frequently employed in functional materials as a result of its three dimensional, noncompliant structures and the interstitial space around the molecule. Most syntheses are based on a Diels–Alder cycloaddition between anthracene and an aryne. The authors describe a one-pot synthesis of triptycenes that proceeds through three cycloadditions of arynes to ynolates.

Comment: The approach of formally inserting three arynes into an alkyne is a new and powerful way to obtain both simple and substituted triptycenes. Calculations provide an insight into the mechanism and explain the high regioselectivity (head-to-head).

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Synthesis of Materials and Unnatural Products

Key words

triptycenes arynes vnolates

