One-pot diastereoselective synthesis of densely functionalized 2*H*-indeno[2,1-*b*]furans. Single-crystal X-ray structure of dimethyl 8,8a-dihydro-8-oxo-8a-(2,2,2-trichloroethoxy)-2*H*-indeno[2,1-*b*]furan- 2,3-dicarboxylate.

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Streszczenie

Highly reactive 1 : 1 intermediates were produced in the reaction of Ph_3P and dialkyl acetylenedicarboxylates (=dialkyl but-2-ynedioates). Protonation of these intermediates by alcohols (2,2,2-trichloroethanol, propargyl alcohol (=prop-2-yn-1-ol), MeOH, benzyl alcohol, and allyl alcohol (=prop-2-en-1-ol) led to vinyltriphenylphosphonium salts **4**, which underwent a *Michael* addition reaction with the conjugate base to produce the corresponding stabilized phosphonium ylides **5** (*Scheme*). *Wittig* reaction of the stabilized phosphonium ylides with ninhydrin (**6**) led to the corresponding densely functionalized 2*H*-indeno[2,1-*b*]furans **10** in fairly good yields (*Table 1*). The structures of the final products were confirmed by IR, ^{1}H- and ^{13}C-NMR spectroscopy, and mass spectrometry. The configuration of dimethyl 8,8a-dihydro-8-oxo-8a-(2,2,2-trichloroethoxy)-2*H*-indeno[2,1-*b*]furan-2,3-dicarboxylate (**10a**) was established by a single-crystal X-ray structure determination, establishing that the one-pot multicomponent condensation reaction was completely diastereoselective.

Adres publiczny

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