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Michael/Michael Addition Cascade of 2-Benzylidene-1-indanones with Chalcones: Synthesis and Biological Evaluations of Novel Polycyclic Compounds

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This work is dedicated to the memory of Professor İsmail Çelik (1961–2019), lecturer of Sivas Cumhuriyet University.

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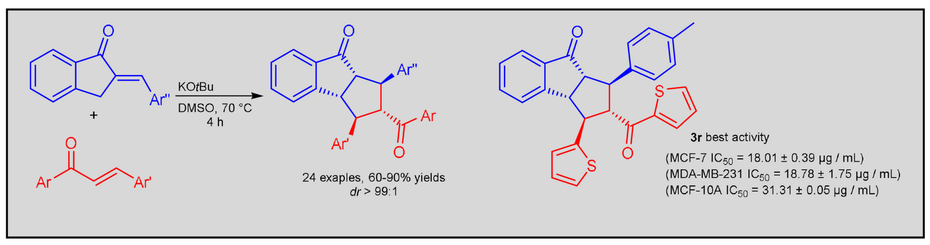
Abstract

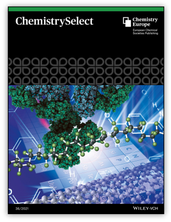
Herein the synthesis of novel racemic polycyclic compounds that have five stereo centers is presented. This compounds were synthesized from KO*t*Bu mediated Michael/Michael addition reaction of 2-benzylidene-1-indanones with chalcones in high yields. This method provides an efficient route for the synthesis of a new class of polycyclic compounds in high diastereoselectivity. The obtained compounds were evaluated for the antimicrobial and anticancer activities against fifteen microorganism and three cell lines. The compound **3** r was showed the best activity against the MCF-7, MDA-MB- 231 and MCF-10 A cell lines.



Abstract

A series of novel racemic 2-aryloyl-1,3-diaryl-2,3,3a,8a-tetrahydrocyclopenta[*a*]inden-8(1*H*)-one derivatives were synthesized from KO*t*Bu mediated Michael/Michael addition reaction of 2-benzylidene-1-indanones with chalcones in high yields. This method provides an efficient route for the synthesis of a new class of polycyclic compounds have five stereo centers. The obtained polycyclic compounds were evaluated for the antimicrobial and anticancer activities against fifteen microorganism and three cell lines. The compound **3 r** have the best activity value against the cells (MCF-7 IC_{50}=18.01±0.39 µg/mL) (MDA-MB- 231 IC_{50}=18.78±1.75 µg/mL) (MCF-10 A IC_{50}=31.31±0.05 µg/mL).

Supporting Information



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