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Chromones as versatile building blocks in cycloaddition reactions

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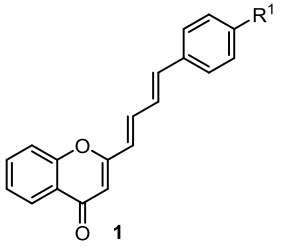
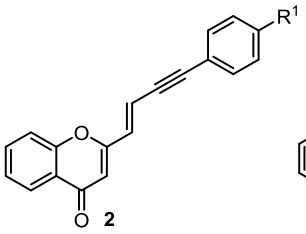
4*H*-Chromen-4-ones commonly referred as chromones are a class of naturally occurring heterocyclic compounds implicated in a series of biological and pharmacological properties.[1] It is also an interesting scaffold involved in a range of chemical transformations for the preparation of novel and more complex oxygen-containing heterocyclic derivatives.[2]

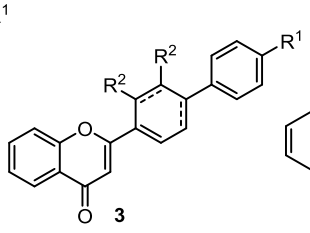
Following our interest in the chemistry of chromones, we design two different building blocks, 2-[(1*E*,3*E*)-4-arylbuta-1,3-dien-1-yl]-4*H*-chromen-4-ones **1** and (*E*)-2-(4-arylbut-1-en-3-yn-1-yl)-4*H*-chromen-4-ones **2**, and explore the reactivity of the unsaturated systems in cycloaddition reactions. In the former case, chromones **1** were used as dienes in microwave-assisted Diels–Alder (DA) reactions with various electron-poor and electron-rich dienophiles to provide flavone-type compounds **3**.[3] In the latter case, the diene system of chromones **2** was involved in DA reactions with *N*-methylmaleimide whereas the acetylene moiety react with sodium azide, via 1,3-dipolar cycloaddition reaction, to afford xanthene-1,2,3-triazole dyads **4**.[4] In this communication, we will present and discuss the synthetic details and spectroscopic characterization of the main products and some interesting byproducts, as well as the intermediate compounds isolated in each case.

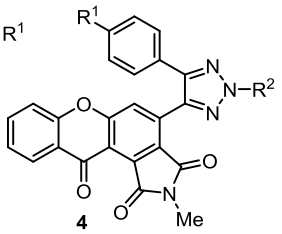


Diels-Alder reaction with electron-poor and electron-rich dienophiles



Diels-Alder reaction with *N*-methylmaleimide and 1,3-dipolar reaction with sodium azide





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