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Sabat, Nazarii	WED-P 50
C-H Functionalization of deazapurine nucleobases	
Saito, Masato	WED-P 109
Electrophilic Activation of Iodonium Ylides by Halogen-Bond-Donor Catalysis for Cross Enolate Coupling	
Saito, Naoki	WED-P 150
Chemistry of Biologically Active Marine Natural 1,2,3,4-Tetrahydroisoquinoline. Unpredictable Photochemical Transformation of Renieramycin Type p-Quinone into Ecteinasclidin Type Phenol	
Santos, Clementina	TUE-P 104
Chromones as versatile building blocks in cycloaddition reactions	
Sarigul, Sevgi	WED-P 12
Axially Chiral Hemiaminals from α -Amino Acid Derivatives (Thiohydantoins): Nonracemic Synthesis and Stereodynamics	
Sawai, Yasuhiro	TUE-P 129
Selective Chlorination of Benzimidazolone Ring: Practical Synthesis of a CRF1 Receptor Antagonist	
Schitter, Theresa	WED-P 125
Tetrasubstituted Enol Ethers via an anti-Carbopalladation/Alkoxylation Cascade	
Schneeweis, Arno	Flash Presentation TUE Track 2 TUE-P 72
Syntheses and Electronic Properties of Di(benzothieno)thiazines	
Sehout, Imene	TUE-P 73
New Green Synthesis of 1,8-Dioxodecahydroacridine Derivatives and Polyhydroquinolines, Via Two Natural Catalysts in a Solvent-Free Medium	
Senthilkumar, Soundararasu	WED-P 87
First Enantioselective Syntheses of Blennolides D, E and F	
Shally	TUE-P 49
One-pot and step-wise regioselective synthesis of polyfunctionalized thieno[3,2-c]pyridin-4-ones	
Sharma, Siddharth	TUE-P 44
Hypervalent Iodine Promoted Organocatalytic Oxidative Ugi Reaction Under Metal-Free Condition	

Chromones as versatile building blocks in cycloaddition reactions

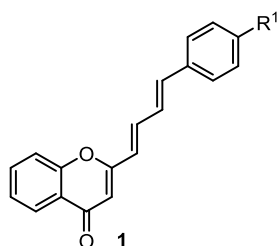
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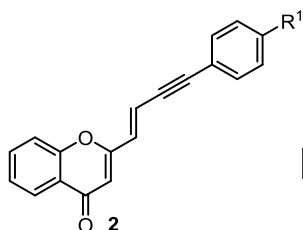
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4*H*-Chromen-4-ones commonly referred as chromones are a class of naturally occurring heterocyclic compounds implicated in a series of biological and pharmacological properties.[1] It is also an interesting scaffold involved in a range of chemical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

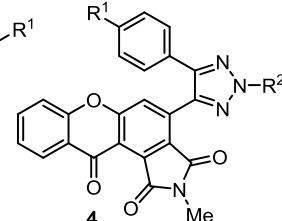
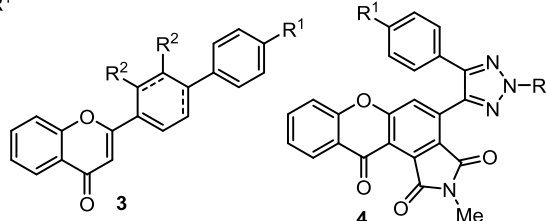
Following our interest in the chemistry of chromones, we design two different building blocks, 2-[(1*E*,3*E*)-4-arylbuta-1,3-dien-1-yl]-4*H*-chromen-4-ones **1** and (*E*)-2-(4-arylbut-1-en-3-yn-1-yl)-4*H*-chromen-4-ones **2**, and explore the reactivity of the unsaturated systems in cycloaddition reactions. 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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- [4] H.M.T. Albuquerque, C.M.M. Santos, J.A.S. Cavaleiro, A.M.S. Silva, *Eur. J. Org. Chem.* **2015**, 4732.