

# REACTIVITY OF 3-STYRYLCHROMONES AS DIENES IN DIELS–ALDER REACTIONS UNDER MICROWAVE IRRADIATION

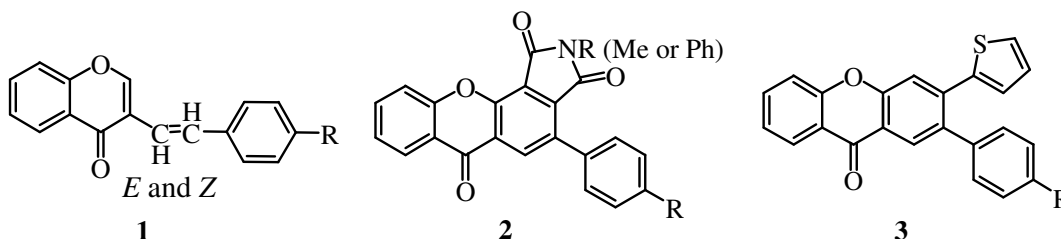
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2-Styrylchromones are a small family of naturally occurring compounds, which have been extensively studied due to their significant biological activity [1]. In the last decade we have been interested in the structure and chemistry of 2-styrylchromones [2] and, more recently, in biological evaluations [3]. Recently we extended our interest to 3-styrylchromones, which have been less widely studied than their 2-isoanalogues. Studies concerning the synthesis, chemical transformations and biological evaluations of these materials are scarce [2]. We focussed our attention on the development of new synthetic methods as well as on the study of their reactivity.

We recently reported the reactivity of these styrylchromones as dienes in Diels–Alder reactions. Initial results indicate that under classical heating conditions 3-styrylchromones are reluctant to react in Diels–Alder reactions, but the use of microwave radiation proved to be a very effective alternative for introducing energy into these reactions [4]. In order to assess the efficiency of microwave irradiation in enhancing the reactivity of 3-styrylchromones **1** as dienes in Diels–Alder cycloadditions, we compare the results obtained in the reactions under solvent-free conditions with those obtained under classical heating conditions. The results obtained in these cycloaddition reactions with *N*-phenyl-, *N*-methylmaleimide and 2-(2-nitrovinyl)thiophene led to a new synthetic method for novel xanthone-type compounds **2** and **3**. The experimental procedures, the characterisation of the new obtained compounds and the regio- and stereoselectivity of these cycloaddition reactions studied by *ab initio* calculations will be presented and discussed.



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