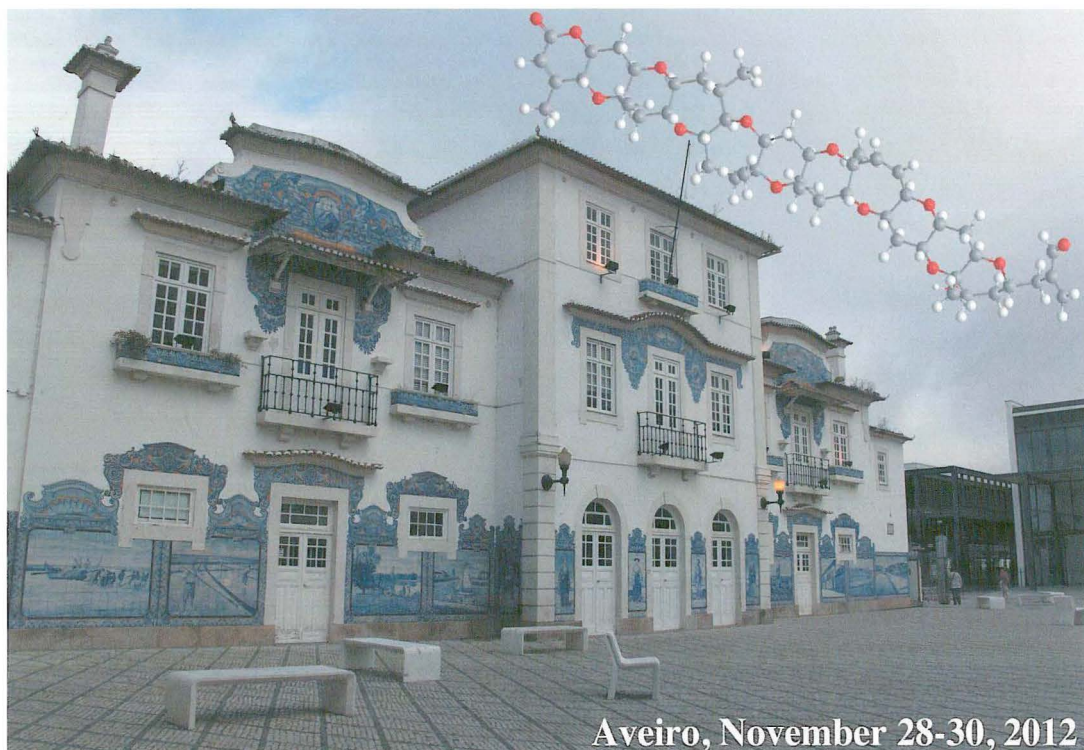


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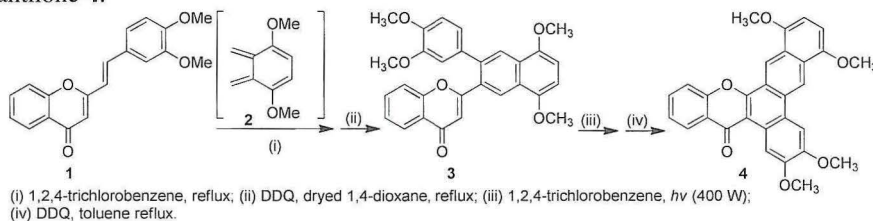
Synthesis of benzo[*a*]naphtho[2,3-*c*]xanthenes from 2-styrylchromones

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2-Styrylchromones, a small group of natural occurring chromones vinylologues of flavones (2-phenylchromones) have been extensively studied (both by synthesis and transformations)^[1] due to their known important biological activities.^[2] Following our interest in 2-styrylchromones and exploiting its reactivity as synthons in the preparation of other type of compounds, we studied their reactivity as dienophile in the Diels-Alder reaction with *ortho*-benzoquinodimethanes.^[3] Another field of interest of our research group is the chemistry of xanthenes.^[4] This class of oxygen-containing heterocyclic compounds is also associated with a broad spectrum of pharmacological properties.^[5] The interesting biological profile of benzoxanthenes^[6] is an example that the tricyclic core of xanthenes may represent a promising key in medicinal chemistry.

In this communication we present a route towards the synthesis of benzo[*a*]naphtho[2,3-*c*]xanthenes from 2-styrylchromones. Here we discuss the experimental procedures and reaction mechanisms of the Diels-Alder transformation of 2-styrylchromone **1** into the oxidized cycloadduct **3** and its subsequent photoinduced electrocyclicization and oxidation that gave access to the desired benzo[*a*]naphtho[2,3-*c*]xanthone **4**.



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Introduction

2-Styrylchromones, a small group of natural occurring chromones vinylogues of flavones (2-phenylchromones), have been extensively studied (both by synthesis and transformations) [1] due to their known important biological activities [2]. Following our interest in 2-styrylchromones and exploiting its reactivity as synthons in the preparation of other type of compounds, we studied their reactivity as dienophile in the Diels-Alder reaction with *ortho*-benzoquinodimethanes [3]. Another field of interest of our research group is the chemistry of xanthenes [4]. This class of oxygen-containing heterocyclic compounds is also associated with a broad spectrum of pharmacological properties [5]. The interesting biological profile of benzoxanthenes [6] is an example that the tricyclic core of xanthenes may represent a promising key in medicinal chemistry.

Results and discussion

¹H NMR spectrum

