

**CHEMISTRY AND PHOTOCHEMISTRY OF NOVEL AROMATIC SPIROKETALS
DERIVED FROM 2,6-BIS(5-BROMO-2-
HYDROXYBENZYLIDENE)CYCLOHEXANONE**

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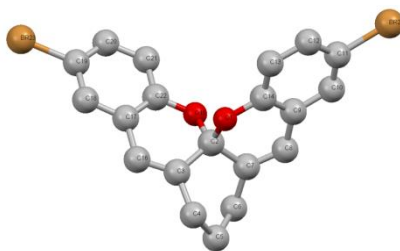
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Abstract

Natural colorants such as flavylum and xanthylium derivatives have attracted considerable interest in the last decades due to their potential health effects and replacement of synthetic pigments. In addition, these type of compounds exhibit versatile photochromic properties by switching from a variety of colours when submitted to different external stimuli[1-3].

The aim of the present work was to design novel photochromic systems based on xanthylium derivatives. Therefore, we have synthesized and characterized 2,6-bis(5-bromo-2-hydroxybenzylidene)cyclohexanone. The network of chemical reactions when submitted to light and different pH values has been investigated. A new colorless compound 3,11-dibromo-7,8-dihydro-6H-chromeno[3,2-d]xanthenes (Scheme 1) isolated from the equilibrated solution of *trans*-chalcone specie in methanol have been isolated and fully characterized by NMR and X-ray diffraction. The rate of the reaction increased when the solution of *trans*-chalcone was exposed to sunlight. The spiroketal form was stable at in neutral and basic conditions, while at low pH values it converts into xanthylium cationic form.



Scheme 1. Crystal structure of 3,11-dibromo-7,8-dihydro-6H-chromeno[3,2-d]xanthenes

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