



6TH SPANISH-PORTUGUESE-JAPANESE ORGANIC CHEMISTRY SYMPOSIUM

FCUL-LISBON
18-20 JULY 2012



BOOK OF ABSTRACTS

6SPJ-OCS
Faculty of Sciences, University of Lisbon
18-20 July 2012
PORTUGAL

NEW XANTHENODIONES: SYNTHESIS AND ANTIOXIDANT ACTIVITY EVALUATION

Stéphanie B. Leal,^a Diana C. G. A. Pinto,^a Ana M. L. Seca,^{a,b} Artur M. S. Silva^a and José A. S. Cavaleiro^a

^aDepartment of Chemistry & QOPNA, University of Aveiro, 3810-193 Aveiro, Portugal,

^bDCTD, University of Azores, 9501-801 Ponta Delgada, Portugal

stephaniebranco@ua.pt

Xanthenediones are scarce in Nature, so far four xanthene-2,9-dione derivatives were found,^[1] and one of them showed moderate activity against two strains of *Plasmodium falciparum*.^[2] References to synthetic xanthenediones are more frequent, however, the common type of substitution pattern is the 9-aryl-3,4,5,6,7,9-hexahydro-1*H*-xanthene-1,8(2*H*)-dione.^[3] Xanthene-1,9(2*H*)-diones were not found in Nature and synthetic derivatives seems to be also scarce, only 3,4-dihydro-1*H*-xanthene-1,9(2*H*)-dione was described.^[4]

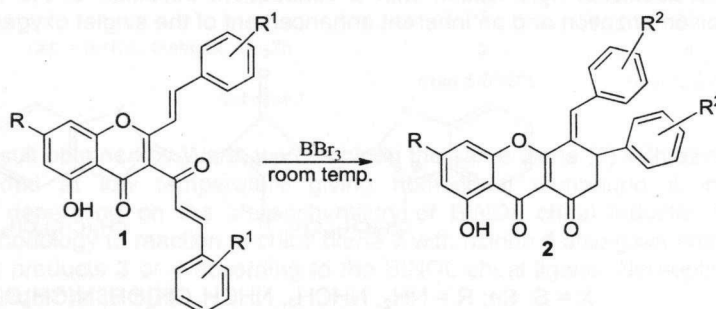
The well-known biological properties of xanthenes, such as antitumor, anti-inflammatory, antioxidant and anticoagulant/antiplatelet activities,^[5] point out for the possibility of xanthenodione derivatives also present important biological activities.

Owing to our continuing interest in the synthesis of novel oxygen heterocycles we have recently developed an unique synthetic procedure towards the synthesis of new xanthenodiones **2**.^[6] Taking into account that polyhydroxylated polyphenolic compounds can be potential antioxidant agents we have synthesized other hydroxylated xanthenodiones and evaluated their antioxidant activity, namely by their ability to scavenge the DPPH radical and the reduce iron(III). Our recent results will be presented and discussed.

R = H or OH

R¹ = H, Me, OMe, Cl

R² = H, Me, OH, Cl



Acknowledgments: Thanks are due to the University of Aveiro, Fundação para a Ciência e a Tecnologia (FCT) and FEDER for funding the Organic Chemistry Research Unit (project PEst-C/QUI/UI0062/2011) and the Portuguese National NMR Network (RNRMN).

- [1] a) Y.-M. Chiang, Y.-H. Kuo, S. Oota, Y. Fukuyama, *J. Nat. Prod.* **2003**, *66*, 1070; b) T.Y. An, L.H. Hu, Z.L. Chen, *Chin. Chem. Lett.* **2002**, *13*, 623.
 [2] A.G.B. Azebaze, M. Meyer, A. Valentin, E.L. Nguemfo, Z. T. Fomum, A. E. Nkengfack, *Chem. Pharm. Bull.* **2006**, *54*, 111.
 [3] D.M. Pore, T.S. Shaikh, N.G. Patil, S.B. Dongare, U.V. Desai, *Synth. Commun.* **2010**, *40*, 2215.
 [4] C.D. Gabbutt, J.D. Hepworth, M.W.J. Urquhart, L.M.V. Miguel, *J. Chem. Soc., Perkin Trans. 1* **1997**, 1819.
 [5] M. M. M. Pinto, M. E. Sousa, M. S. J. Nascimento, *Curr. Med. Chem.*, **2005**, *12*, 2517.
 [6] D. C. G. A. Pinto, A. M. L. Seca, S. B. Leal, A. M. S. Silva, J. A. S. Cavaleiro, *Synlett*, **2011**, 2005.