

# 1<sup>st</sup> Symposium on MEDICINAL CHEMISTRY of University

**Braga**

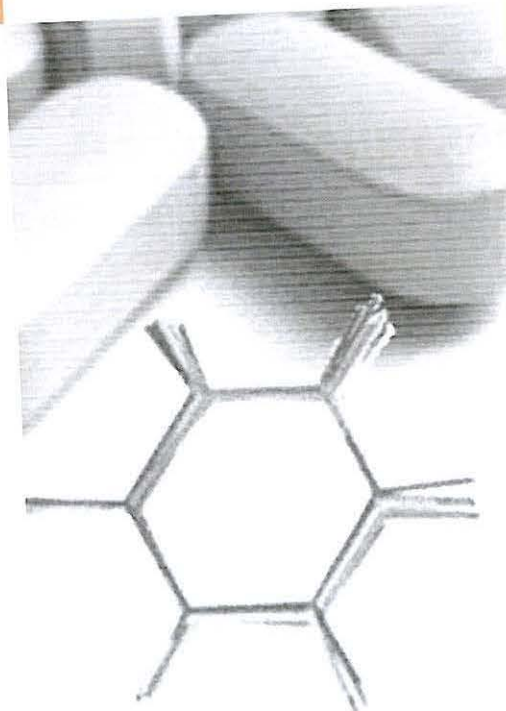
*Campus de Gualtar*  
17 May 2013



Universidade do Minho  
Braga, Portugal



1911-2011  
**100 ANOS**



**In vitro evaluation of antioxidant properties, anti-hepatocellular carcinoma activity and hepatotoxicity of Borututu infusion and dietary supplements**

C. Pereira, L. Barros, ICFR Ferreira<sup>a</sup>

Centro de Investigação de Montanha (CIMO), ESA, Instituto Politécnico de Bragança, Portugal;  
<sup>a</sup>iferreira@ipb.pt

*Cochlospermum angolensis* Welw. (borututu) is widespread in parts of Angola, as the name indicates, and belongs to the Cochlospermaceae family. Its bark infusion is used in the traditional medicine of Angola for the treatment of hepatic diseases and for the prophylaxis of malaria [1,2]. In the present work, the infusion and dietary supplements of borututu, widely used for their hepatoprotective effects, were submitted to an evaluation of bioactive compounds (phenolics and flavonoids), antioxidant activity (expressed as DPPH scavenging activity, reducing power,  $\beta$ -carotene bleaching inhibition, and TBARS formation inhibition), anti-hepatocellular carcinoma activity (HepG2 tumour cell line) and hepatotoxicity (non-tumour liver primary culture PLP2). Borututu infusion gave high amounts of total phenolics (132.26 mg of gallic acid equivalents/g) and flavonoids (17.88 mg of catechin equivalents/g), as also high antioxidant activity ( $EC_{50} \leq 170 \mu\text{g/mL}$ ) in all the assays and also revealed anti-hepatocellular carcinoma activity ( $GI_{50} = 146 \mu\text{g/mL}$ ) without toxicity for non-tumour liver cells ( $GI_{50} > 400 \mu\text{g/mL}$ ). The bioactive properties (antioxidant and antitumour) of the infusion were positively correlated with phenolics and flavonoids content. This plant revealed antioxidant properties with  $EC_{50}$  values lower than the daily recommended dose, but infusion was more active than dietary supplements. Moreover, dietary supplements, up to  $400 \mu\text{g/mL}$ , did not inhibit the growth of hepatocellular carcinoma cell line (HepG2).

Acknowledgments:

The authors are grateful to the Foundation for Science and Technology (FCT, Portugal) for financial support to the research centre CIMO (PEst-OE/AGR/UI0690/2011). L. Barros also thanks to FCT, POPH-QREN and FSE for her grant (SFRH/BPD/4609/2008).

References:

- [1] W. Presber, D. K. Herrman, B. Hegenscheid, *Angewandte Parasitologie*, **1991**, 32:7-9.
- [2] J. R.A. Silva *et al.*, *Mem Inst Oswaldo Cruz*, **2011**, 106:142-158.