

BOOK OF ABSTRACTS

8TH MEETING OF YOUNG RESEARCHERS
OF UNIVERSITY OF PORTO



U. PORTO



PROGRAM

WEDNESDAY, 13 th		THURSDAY, 14 th	FRIDAY, 15 th
08:30	09:00		REGISTRATION
09:00	10:00		
09:00	10:00		PARALLEL ORAL SESSIONS VI A1- Psychology & Education Sciences III A2- Maths A3- Environment I A4- Biological Sciences VI
10:00	10:30		
10:00	10:30		POSTER VIEWING & Coffee Break
10:30	11:30		
10:30	11:30		PARALLEL ORAL SESSIONS VII A1- Economics A2- Astronomy & Physics I A3- Environment II A4- Law & Criminological Sciences
11:30	13:00		
11:30	13:00		
13:00	14:00		
13:00	14:00		Lunch Break
14:00	14:30		
14:00	14:30	REGISTRATION	Lunch Break
14:30	16:00		
14:30	16:00	PARALLEL ORAL SESSIONS IV A1- Agro Food I A2- Sport Sciences A3- Biological Sciences IV A4- Biomedicine IV	PARALLEL ORAL SESSIONS VIII A1- Arts & Architecture A2- Astronomy & Physics II A3- Public Health & Epidemiology
16:00	17:00		
16:00	17:00	POSTER VIEWING & Coffee Break	POSTER VIEWING & Coffee Break
17:00	18:30		
17:00	18:30	PARALLEL ORAL SESSIONS V A1- Agro Food II A2- Humanities & Social Sciences A3- Biological Sciences V A4- Biomedicine V	
17:00	18:30	PARALLEL ORAL SESSIONS III A1- Engineering III A2- Chemistry III A3- Biological Sciences III A4- Biomedicine III A5- Psychology & Education Sciences II	



ENCONTRO INVESTIGAÇÃO JOVEM
DA UNIVERSIDADE DO PORTO

V PARALLEL
ORAL
SESSIONS V



ENCONTRO INVESTIGAÇÃO JOVEM
DA UNIVERSIDADE DO PORTO

A1 **AGRO FOOD II**
PARALLEL ORAL SESSIONS V

Development and validation of an HPLC-DAD-FL method for the determination of food supplements adulteration with undeclared phosphodiesterase type-5 inhibitor drugs

T. Rocha¹, J. Santos¹, J.S. Amaral^{1,2} and M.B.P.P. Oliveira¹

¹ REQUIMTE/LAQV, Dep. of Chemical Sciences, Faculty of Pharmacy, University of Porto, Portugal.

² ESTiG, Instituto Politécnico de Bragança, Bragança, Portugal.

The consumption of food supplements has been increasing in developed countries. However, regulations and guidelines for this type of products reveal several gaps, and do not guarantee an efficient quality control, allowing for the possibility of intentional adulteration. Supplements used for improvement of male sexual performance are among the most popular food supplements. One of the major concerns in these products is the possible adulteration with synthetic drugs used for the treatment of erectile dysfunction, namely phosphodiesterase type-5 (PDE-5) inhibitor drugs, such as sildenafil, vardenafil and tadalafil. The side effects of these compounds and possible interactions with other drugs are well documented, thus its illegal addition to food supplements could pose a serious risk for consumers with known health constraints [1]. In the last years, the presence of this type of drugs have been detected by FDA in the US and reported in food supplements commercialized in Asia and the EU. Recently, Portuguese legal authorities reported the apprehension of some food supplements due to the presence of illegal PDE-5 inhibitor drugs.

In this work, an high performance liquid chromatography (HPLC) based method was developed and validated for the detection of four PDE-5 inhibitors, namely sildenafil, vardenafil, tadalafil and yohimbine, in three sexual performance enhancement supplements. The analyses were performed by HPLC-DAD-FL in a JASCO chromatograph following the conditions of a previously published method [2]. A YMC-Triart C18 analytical column (3 µm, 250 × 4.6 mm) was used, together with (A) 50 mM Ammonium acetate; (B) acetonitrile/ methanol (50:50) as eluents. A simple liquid-liquid extraction with sonication using acetonitrile/methanol (50:50) was used in all samples. To validate the proposed methodology, the limits of detection (LOD) and quantification (LOQ), linearity range, intra- and inter-day precision and accuracy of the method were determined, showing high reproducibility scores and adequate recoveries for the tested compounds. One of the analyzed supplements showed the illegal addition of sildenafil.

References:

[1] Patel, D. N., Li, L., Kee, C., Ge, X., Low, M., Koh, H. (2014). *Screening of Synthetic PDE-5 Inhibitors and Their Analogues as Adulterants: Analytical Techniques and Challenges*. Journal of Pharmaceutical and Biomedical Analysis, 87, 176–90.

[2] Fejos, I., Gábor N., Szabolcs B., Jankovics, P. (2014). *Qualitative and Quantitative Analysis of PDE-5 Inhibitors in Counterfeit Medicines and Dietary Supplements by HPLC-UV Using Sildenafil as a Sole Reference*. Journal of Pharmaceutical and Biomedical Analysis 98: 327–33.

Acknowledgments: to financial support from FCT and EU (FEDER funds through COMPETE) through projects PEst-C/EQB/LA0006/2013 and EXPL/DTP-SAP/1438/2013, and QREN (NORTE-07-0124-FEDER-000069-CIÊNCIA DO ALIMENTO).