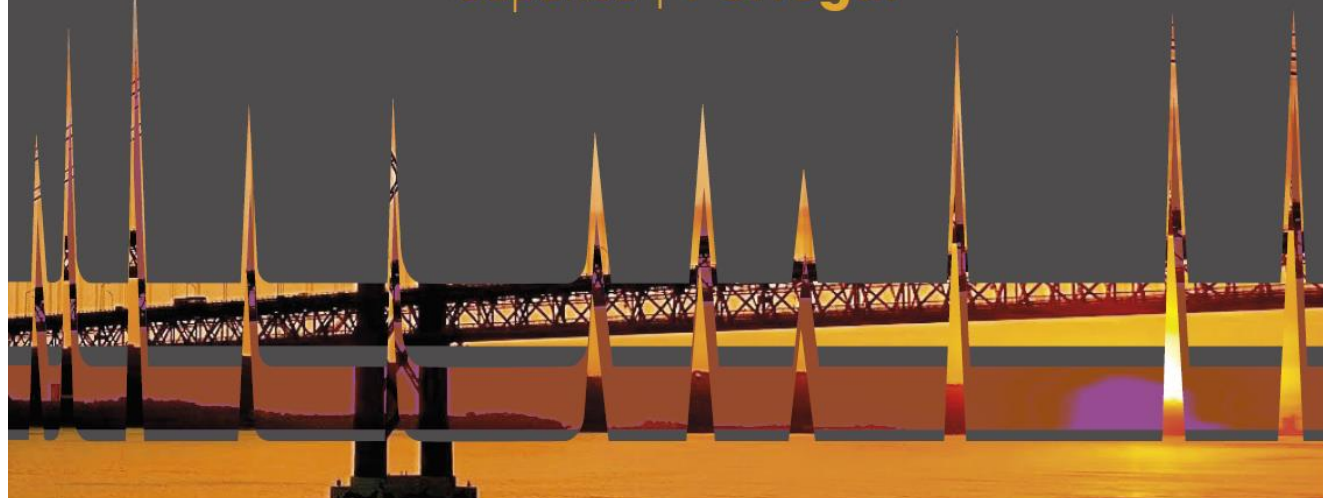


11^o CONGRESSO
NACIONAL
DE CROMATOGRAFIA

20 anos
CROMATOGRAFIA

11th NATIONAL MEETING ON CHROMATOGRAPHY

9 | 11 Dezembro 2019
Caparica | Portugal



Faculdade de Ciências e Tecnologia,
Universidade NOVA de Lisboa



Title

11th National Chromatography Meeting

Título

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SCIENTIFIC AND SOCIAL PROGRAM

SATURDAY, DECEMBER 7

09:00 Short courses registration and FCT NOVA

1. *Sample preparation methods for chromatographic analysis. 9:30 to 12:30*
Eduardo Mateus, Resolution Lab, CENSE-FCT-NOVA, Portugal
2. *MS hyphenation with LC and GC. 14:30 to 17:30*
Marco Gomes da Silva, Resolution Lab, LAQV-FCT NOVA, Portugal
3. *Validation of Chromatographic Methods. 14:30 to 17:30*
Alice Mosca – AIM, Portugal and Ricardo Bettencourt Silva – FCUL, Portugal

SUNDAY, DECEMBER 8

4. *Comprehensive gas chromatography – GC x GC. 9:30 to 12:30*
Philip Marriott, School of Chemistry, Faculty of Science at Monash University – Australia
5. *HPLC. 14:30 to 17:30*
Marco Gomes da Silva, Resolution Lab, LAQV-FCT NOVA, - Portugal

WEDNESDAY, DECEMBER 11

6. *Large-scale efficient extraction of chemical information from untargeted chemical profiling (GC/MS) data. 14:30 to 17:30*
Rasmus Bro, Copenhagen University, Faculty of Sciences – Denmark

P07 Phytochemical profile and biological activities of 'Ora-pro-nobis' leaves (*Pereskia aculeata* Miller), an underexploited superfood from the Brazilian Atlantic Forest

Jéssica A. A. Garcia^{1,2}, Rúbia C.G. Corrêa^{3,4}, Lillian Barros³, Carla Pereira³, Rui M.V. Abreu³, Maria José Alves³, Ricardo C. Calhêla³, Adelar Bracht^{1,2}, Rosane M. Peralta^{1,2}, Isabel C.F.R. Ferreira³

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Pereskia aculeata Miller, known worldwide as ora-pro-nobis, is a highly nutritive species of the Cactaceae family from the Brazilian Atlantic Forest. From South to Northeast of Brazil, ora-pro-nobis leaves are used in traditional cuisine, featuring as an ingredient of various sweet and savoury dishes. In some low-income communities, it is known as the 'meat of the poor', being the main protein source available.¹ The aim of the present work was to perform an inedited study on the phytochemical profile and some biological activities of *P. aculeata* leaves, with the view of expanding the current knowledge on the potentialities of this superfood. For this purpose, its hydroethanolic extract was characterized in terms of phenolic composition, antioxidant, and antibacterial capabilities and finally the hepatotoxicity of the extract was evaluated.

A total of ten phenolic compounds were identified via high-performance liquid chromatography coupled to diode array detector and mass spectrometer (HPLC-DAD-ESI/MSn): two phenolic acids (caffeic acid derivatives) and eight flavonoids (quercetin, kaempferol and isorhamnetin glycoside derivatives). Caffeic acid was the extract's major phenolic constituent, accounting for more than 49% of the phenolic content, followed by quercetin-3-*O*-rutinoside (14.99%) and isorhamnetin-*O*-pentoside-*O*-rutinoside (9.56%). The total phenolic content found in the hydromethanolic extract was relevant (23.75 mg/g). A broad study of the extracts' antioxidant activity was carried out, using a set of five distinct methods: two cell-based methods (1) oxidative haemolysis inhibition assay (OxHLIA); (2) the inhibition of the production of thiobarbituric acid reactive substances (TBARS); besides three chemical in vitro assays (3) reduction of the 2,2-diphenyl-1-picrylhydrazyl radical (DPPH); (4) reduction of the 2,2-azino-bis (3-ethylbenzothiazoline-6-sulphonate) cation (ABTS) and (5) hydroxyl radical scavenging assay.² Overall, the ora-pro-nobis leaf extract showed relevant values of antioxidant activity, even higher than Trolox in the DPPH and ABTS trials. The antioxidant activity verified for the hydroethanolic leaf extract of *P. aculeata* is possibly related to its phenolic composition; the predominant constituents of the extract, i.e. caffeic acid and rutin, have widely proven antioxidant activities.¹ Furthermore, the evaluated extract showed no toxicity against a non-tumour liver primary culture PLP2, at the highest tested concentration (400 µg/mL). The antimicrobial activity exhibited by the extract against both Gram-positive (*Enterococcus faecalis*, *Listeria monocytogenes*, MRSA – Methicillin-resistant *Staphylococcus aureus*) and Gram-negative (*Escherichia coli*, *Klebsiella pneumoniae*, *Morganella morganii*, *Proteus mirabilis*, and *Pseudomonas aeruginosa*) bacteria (MIC values between 5 to 20 mg/mL) suggests the presence of a broad spectrum of phytochemicals with antimicrobial activity. The extract was more active against *K. pneumoniae* than the antibiotic ampicillin, whereas against *M. morganii* it presented equivalent inhibitory effect.

Therefore, the information reported here not only corroborates the importance of the production and consumption of *P. aculeata* leaves by the low income population to improve nutrition, but also reinforces their potential as a sustainable source of promising food ingredients to be used both for food enrichment and preservation.

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2. Lockowandt, J. Pinela, C.L. Roriz, C. Pereira, R.M. Abreu, R.C. Calhêla, M.J. Alves, L. Barros, M. Bredol, I.C.F.R. Ferreira. Ind. Crop Prod 128 (2019) 496-503.