

Le laboratoire de pharmacognosie et phytochimie - Faculté de pharmacie de l'université de Coimbra - Portugal

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Chania : CIHEAM

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1997

pages 111-116

Article available on line / Article disponible en ligne à l'adresse :

<http://om.ciheam.org/article.php?IDPDF=CI011067>

To cite this article / Pour citer cet article

Proença da Cunha A. **Le laboratoire de pharmacognosie et phytochimie - Faculté de pharmacie de l'université de Coimbra - Portugal.** In : Heywood V.H. (ed.), Skoula M. (ed.). *Identification of wild food and non-food plants of the Mediterranean region*. Chania : CIHEAM, 1997. p. 111-116 (Cahiers Options Méditerranéennes; n. 23)



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LE LABORATOIRE DE PHARMACOGNOSIE ET PHYTOCHIMIE - FACULTÉ DE PHARMACIE DE L' UNIVERSITÉ DE COIMBRA - PORTUGAL

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RÉSUMÉ

On presente le personnel d'enseignement et d'investigation du Laboratoire, leurs axes d'investigation (étude des plantes médicinales des plantes aromatiques, des huiles essentielles et des produits de ruche), les services et l'instrumentation disponible au laboratoire, et les différents types de coopération internationale. Des listes avec les plus importantes plantes médicinales et aromatiques sauvages et les cultivés au Portugal et des plantes comestibles sauvages sont aussi présentées.

SUMMARY

A presentation is made of the Laboratory of Pharmacognosy and Phytochemistry of the Faculty of Pharmacy of Coimbra covering its education and research staff, the main research areas and facilities and guidelines for the development of research on medicinal and aromatic plants in Portugal.

KEY-WORDS

PORTUGAL, PHYTOCHEMISTRY, PHARMACOGNOSY, MEDICINAL PLANTS, AROMATIC PLANTS, RESEARCH PROJECT

MOTS-CLES

PORTUGAL , PHYTOCHEMIE, PHARMACOGNOSIE, PLANTE MEDICINALE, PLANT AROMATIQUE, PROJET DE RECHERCH

EDUCATION AND RESEARCH STAFF

A. Proença da Cunha (Professor and Head of the Laboratory), Jorge Paiva (Associate Professor), Lúcia Salgueiro (Assistant Professor), Maria Teresa Baptista (Assistant Professor), Maria José Gonçalves (Assistant Professor), Odete Roque (Senior Researcher), Graça Campos (Assistant), Carlos Cavaleiro (Assistant), António Paranhos (Assistant), Maria Teresa Amaral (Researcher) and as non-permanent staff: 1 Post-Doctoral students, 2 PhD students and 2 Masters students. The laboratory also has the capacity for admitting one or two PhD. students in the area of research of the network.

MAIN RESEARCH AREAS

MEDICINAL PLANTS

- Phytochemical and pharmacological studies on medicinal plants from the European flora. (*Tilia europea*, *Passiflora edulis*, *Valeriana officinalis*, *Ceratonia siliqua*, etc.).
- Phytochemical study on plants with antimicrobial activity from the flora of São Tomé e Príncipe (Gulf of Guinea, West Africa).

AROMATIC PLANTS AND ITS ESSENTIAL OILS

- Studies on the chemical composition of essential oils and evaluation of chemotypes of aromatic plants from the European flora. (*Thymus*, *Juniperus*, *Pinus*, *Eucalyptus*, etc.).
- Studies on the chemical composition of essential oils of aromatic plants from the São Tomé e Príncipe flora.

HONEY COMB PRODUCTS

- Typification of types of honey by their pollinic spectrum, physico-chemical characteristics, sugar and polyphenolic compounds.
- Characterization of the bee pollen for its composition in flavonoid compounds. Evaluation of its antioxidant activity.

AVAILABLE SERVICES AND HARDWARE

Botanical laboratory; phytochemical laboratory; spectroscopy unit (visible and U.V.); preparative and analytical gas chromatography unit; semi-preparative and analytical HPLC unit; pilot unit for distillation of aromatic plants; access to IR, MS and NMR.

COOPERATION WITH THE PHARMACEUTICAL INDUSTRY

Solvay-Pharma (Portugal): grant for the investigations on *Valeriana officinalis*; Euro-Labor (Coimbra - Portugal). Participation in stages and development of projects for the production of natural active compounds.

INTERNATIONAL PARTNERSHIPS

In the context of the E.U. Erasmus Programme, cooperation with the Faculties of Pharmacy of the Universities of Salamanca, Granada, Madrid and Santiago de Compostela (Spain); Nantes, Paris-Sud, Marseille and Lyon (France); Liège and Ghent (Belgium); Heidelberg (Germany); Athens (Greece); London and Cardiff (United Kingdom).

For the development in common research projects: Faculty of Pharmacy of the University Barcelona (Spain); Faculty of Pharmacy of the University of Salamanca (Spain); Faculty of Sciences of the University of Corsica (France); Faculty of Sciences of the University of Lisbon (Portugal); University of Metz (France).

In the aim of the CYTED Network, «Validation of Medicinal Plants».. (Coordination of the Prof. A. J. Lapa, Escola Paulista de Medicina de São Paulo, Brazil)

In the aim of the ALFA Program: Relaplamed project (Coordination of the Prof. A. San Feliciano, Faculty of Pharmacy of Salamanca (Spain); Relaffar project (Coordination of the Prof. J. Silvério Cachaza, Faculty of Pharmacy of Salamanca (Spain)).

In the aim of a Network for the study of medicinal plants from the European flora, cooperation with the University of Metz (France) and the Laboratory of Pharmacognosy of the Faculties of Pharmacy of the Universities of Strasbourg (France), Oporto and Lisbon (Portugal).

Guidelines for research on wild and cultivated medicinal and edible plants of the Portuguese flora.

TABLE 1. MEDICINAL AND AROMATIC WILD PLANTS FROM PORTUGAL OF COMMERCIAL INTEREST

<i>Achillea millefolium</i> L.	Yarrow
<i>Agrimonia eupatoria</i> L.	Agrimony
<i>Althea officinalis</i> L.	Marshmallow leaves
<i>Althea officinalis</i> L.	Marshmallow roots
<i>Arctium lappa</i> L.	Great burdock roots
<i>Artemisia absinthium</i> L.	Common wormwood
<i>Borago officinalis</i> L.	Borage flower
<i>Buxus sempervirens</i> L.	Bucchu leaves
<i>Calendula officinalis</i> L.	Marigold flowers
<i>Calluna vulgaris</i> L.	Ling - flowers and leaves
<i>Capsella bursa-pastoris</i> L.	Capweed
<i>Carum carvi</i> L.	Caraway
<i>Centaurium erythraea</i> Vahl.	Common centaury
<i>Cydonia oblonga</i> Miller	Quince
<i>Cytisus scoparius</i> L.	Broom flowers
<i>Datura stramonium</i> L.	Thorn apple
<i>Equisetum arvense</i> L.	Common horsetail
<i>Filipendula ulmaria</i> L.	Meadowsweet
<i>Fraxinus</i> spp.	Ash
<i>Fumaria officinalis</i> L.	Fumitory
<i>Geranium robertianum</i> L.	Herb robert
<i>Hipericum perforatum</i> L.	Common St. John's wort
<i>Juniperus communis</i> var. <i>nana</i>	Juniper berries
<i>Lamium album</i> L.	White dead-nettle
<i>Lithospermum diffusum</i> L.	
<i>Malva sylvestris</i> L.	leaves
<i>Marrubium vulgare</i> L.	White hore-hound
<i>Matricaria camomilla</i> L.	Chamomile
<i>Melissa officinalis</i> L.	Balm
<i>Mentha pulegium</i> L.	Pennyroyal
<i>Origanum virens</i> Hoff. & Lk.	Oregano tips, leaves
<i>Parietaria officinalis</i> L.	Wall pellitory
<i>Plantago lanceolata</i> L.	Plantain
<i>Polygonum aviculare</i> L.	
<i>Pterospartum tridentatum</i> L.	
<i>Rosmarinus officinalis</i> L.	Rosemary leaves
<i>Rubia tinctorum</i> L.	Madder root
<i>Ruta graveolens</i> L.	Garden rue
<i>Salix alba</i> L.	White willow bark
<i>Sambucus nigra</i> L.	European elder flower
<i>Satureja calamintha</i> (L.) Scheele.	Calamint
<i>Satureja montana</i> L.	Savory
<i>Taraxacum officinalis</i> Weber	Dandelion
<i>Thuya occidentalis</i> L.	Thuya leaves
<i>Thymus</i> spp.	Thyme leaves
<i>Tilia</i> sps.	Linden
<i>Verbascum thapsus</i> L.	Orange mullein
<i>Veronica officinalis</i> L.	Common speedwell
<i>Aloe vera</i> L.	Aloes leaves

<i>Cichorium intybus</i> L.	Chicory
<i>Citrus aurantium</i> L. <i>dulcis</i>	Sweet orange flower
<i>Citrus aurantium</i> L. <i>dulcis</i>	Sweet orange leaves
<i>Cymbopogon citratus</i> (Nees) Stapf	Lemon grass leaves
<i>Eucalyptus globulus</i> Labill.	Eucalyptus leaves
<i>Foeniculum vulgare</i> Miller var. <i>dulce</i> Batt. & Trab.	Sweet fennel
<i>Fragaria vesca</i> L.	Wild strawberry
<i>Gomphrena globosa</i> L.	
<i>Hypericum androsaemum</i> L.	
<i>Juglens regia</i>	Walnut Leave
<i>Linum usitatissimum</i> L.	Linseed
<i>Lippia citriodora</i>	Real vervain herb
<i>Melissa officinalis</i> L.	Balm leaves
<i>Mentha piperita</i> L.	Peppermint herb
<i>Olea europaea</i> L.	Olive leaves
<i>Pimpinella anisum</i> L.	Anise seed
<i>Salvia officinalis</i>	Sage herb
<i>Sambucus nigra</i> L.	European elder flower
<i>Trigonella foenum-graecum</i>	Fenugreek
<i>Vicia faba</i> L.	Broad bean
<i>Vitis vinifera</i> L.	Grape wine leaves

TABLE 2. EDIBLE WILD PLANTS

<i>Portulaca oleracea</i> L. var. <i>sativa</i>		Cultivated in some countries
<i>Anchusa officinalis</i> L.	Alkanet	Can be used as spinach
<i>Atriplex</i> sps.	Orache	Can be used as spinach
<i>Borago officinalis</i> L.	Borage	Can be used as spinach
<i>Chenopodium album</i> L.	Fat hen	Can be used as spinach
<i>Chenopodium bonus-henricus</i> L.	Good King Henry, All good	Can be used as spinach
<i>Polygonum bistorta</i> L.	Snakeroot	Can be used as spinach
<i>Urtica dioica</i> L.	Stinging nettle	Can be used as spinach
<i>Corema album</i> (L.) D. Don	Crakeberry shrub, Crowberry	Fruits
<i>Rubus fruticosus</i> agg.	Blackberry, Bramble	Fruits
<i>Sanguisorba</i> spp.		Leaves and young shoots
<i>Lapsana communis</i> L.	Nipplewort	Leaves in salads, sandwiches or in omelettes.
<i>Prunella vulgaris</i> L.		Leaves in soups, salads, etc.
<i>Pulmonaria officinalis</i> L.	Lungwort	Leaves in soups, salads, etc.
<i>Sonchus arvensis</i> L.	Field milk-thistle	Leaves in salads
<i>Alium schoenoprasum</i> L.	Chives	The same proprieties of garlic clooes
<i>Alium ursinum</i> L.	Ramsons	The same proprieties as garlic
<i>Meum athamanticum</i> Jacq.	Spignel, Meu, Baldmoney	Condiment
<i>Tricholoma equestre</i>		Mushroom growing under pine trees