

# The ethnopharmacology of Madeira and Porto Santo Islands, a review

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## Abstract

The ethnopharmacology of Madeira and Porto Santo Islands is extremely interesting because of the cultural and biogeographic features of this region, which make it a centre of medicinal plant diversity (richness of endemic flora, geographical isolation in the Atlantic sea, crosscultural influences, and past abundance of local healers). The medicinal flora of Madeira is composed of 259 species. Some noteworthy medicinal taxa, endemic or locally relevant, are: *Acanthus mollis*, *Aeonium glandulosum*, *Aeonium glutinosum*, *Bidens pilosa*, *Borago officinalis*, *Chamaemelum nobile* var. *discoideum*, *Culcita macrocarpa*, *Echium nervosum*, *Euphorbia platiphylla*, *Helichrysum melaleucum*, *Helichrysum obconicum*, *Hypericum glandulosum*, *Hypericum humifussum*, *Kleinia repens*, *Laurus azorica*, *Monizia edulis*, *Ocotea foetens*, *Psoralea bituminosa*, *Rubus bollei*, *Rumex maderensis*, *Sambucus lanceolata*, *Scilla maderensis*, *Sedum brissemoretii*, *Sedum farinosum*, *Sedum nudum*, *Sibthorpia peregrina*, *Teucrium betonicum*, *Thymus caespititius*, *Trifolium squamosum* and *Vaccinium padifolium*. Among the medicinal cryptogams, one can underline the parasitic fungus *Laurobasidium lauri*, which grows on the stems of *Laurus azorica* and is used as an antirheumatic, haemostatic, emmenagogue, insecticide and analeptic.

**Keywords:** Herbal medicine; Dysentery; Antitumor; Dermatologic; Diuretic; Coryza; Bronchitis; Liver diseases; Macaronesia

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## 1. Introduction

The archipelago of Madeira comprises the islands of Madeira, Porto Santo and a group of three other islands, named Desertas. Madeira is situated between 33° 7' N, 17° 16' W and 32° 22'

N, 16° 16' W, in the Atlantic Ocean, being included within the Macaronesian Region.

The Portuguese colonised Madeira from the beginning of the 15th century. The colonisers were peasants and craftsmen from the Algarve region, S. Portugal and Minho (Silva and Menezes, 1984b). Another element introduced among the rural population at an early stage were slaves, Moorish and Guinea Negroes, employed in the

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sugar cane plantations. Before this date, Madeira was a virgin island; there were no natives who could explain how to use the local flora. This is a marked difference between Madeira and the Canary Islands, formerly inhabited by the 'Guanches' and other tribes, who were well acquainted with the medicinal properties of the local flora (Daráis et al., 1986). By the late 19th and early 20th centuries, local medicine was customarily based on herbal remedies (Branco, 1935a, 1950). The peasants of Madeira (the 'viloes') had a basic knowledge on their medicinal plants which, in fact, were used frequently. These self-healing practices evolved because of the almost absolute lack of medical practitioners in the archipelago (Branco, 1935a). This near-absence of physicians was also a characteristic of the Canary Islands (Daráis et al., 1986). The practice of herbal medicine was an extremely adaptive system for the use of natural resources, and was sexually oriented in the sense of being nearly exclusively in the hands of old women. These highly specialised women, known as 'curandeiras', were the rural substitute for the academic physician (Branco, 1935a). As far as we have been able to determine, this wealth of knowledge is actually in serious danger of extinction, being transformed into a sort of commercial urban herbalism.

While the southern Macaronesian ethnopharmacology (the Canary Islands) has been recently studied (Jaén, 1984; Daráis et al., 1986, 1989; Pérez and Medina, 1988), for the Northern Macaronesia this information is extremely scattered and difficult to access. The present work was undertaken as part of an on-going project involving the preliminary review of the traditional uses of plants in the Iberian Peninsula and neighbouring territories, with the scope of publishing a monograph.

## 2. Review of the literature

The present review is based on an exhaustive research of local newspapers, encyclopedias and floras, and scientific publications abroad. The first European visitors who described the region reported the peculiarities of its medicinal flora; the most comprehensive account was given by G. Frutuoso in 1590 (Frutuoso, 1952). The Spanish

naturalist José de Viera y Clavijo (1731–1813) reported on the uses of several Madeiran medicinal plants in his Natural History Dictionary (Viera, 1982). Leonard Plukenet described in the 17th century several Madeiran medicinal plants (Francisco et al., 1994). Richard Thomas Lowe (1857–68, 1867, 1872) recorded a few traditional uses of Madeiran plants. Carlos Azevedo de Menezes produced an authoritative Flora of Madeira (Menezes, 1914) which included a list of Portuguese names and several references to the uses of plants, but the most interesting data recorded by Menezes concerning medicinal plants can be found in the local encyclopedia of Menezes and Silva, which has been repeatedly published since 1921 (Silva and Menezes, 1984a,b,c). Kämmer and Maul (1982) have provided an index for the scientific names of the animals and plants covered by this encyclopedia. The late Visconde do Porto da Cruz, Alfredo de Freitas Branco, was a well known local publicist in Madeira, who also dealt with anthropology and local folklore. His most interesting contribution to ethnopharmacology started with a review of local herbal remedies, including Portuguese names for diseases arranged in alphabetical order (Branco, 1935a,b,c). This work, while remaining nearly unchanged, was published also in the local *Revista Portuguesa* (Branco, 1941a,b,c,d,e,f and 1942a,b,c,d). Branco (1950) compiled his previous works in the form of a list of medicinal plants arranged in alphabetical order by their Portuguese names. The last publication by this author which we have traced deals with local folklore (Branco, 1954) and gives some further information about plants in local medicine. A few references to medicinal plants can be found in the miscellaneous work of Pereira (1967a,b). Oliveira (1960, 1961, 1963) included some uses for the Madeiran plants. Rui Vieira (1992) furnished some new data concerning ethnopharmacology of endemic species. Rivera and Obón (1995, in press) recorded some medicinal plants from the Funchal's city market. Rivera et al. (1994a) reported some recent medicinal uses of *Salvia fruticosa*.

The botanical synonymy has been arranged according to Lowe (1857–68, 1867, 1872), Menezes (1914) and Franquinho and Costa (1989). We also consulted the lists of Hansen (1969a, 1970a) and

Table 1  
List of the medicinal plants of Madeira and Porto Santo<sup>a</sup>

Family species	Common name	Part used	Uses recorded
<b>FUNGI</b>			
<b>EXOBASIDIACEAE</b>			
<i>Laurobasidium lauri</i> (Brotero emmend. Fries) Jülich (1.2.5.7.9.11.13). P.	Madre de louro	Gall-carpophore	After pounding, mixed with tobacco snuff; used as antirheumatic, haemostatic (in brandy); macerated with leaves and flower heads of <i>Chamaemelum</i> used as emmenagogue and analeptic
<b>FERNS AND ALLIED</b>			
<b>DAVALLIACEAE</b>			
<i>Davallia canariensis</i> (L.) Sm. (2.5.7.9.10). P.	Cabinhas, cabrinhas — Canary Island hare's foot fern	Rhizome, leaves	Infusion used as antiasthmatic; externally applied on dermatosis
<b>DICKSONIACEAE</b>			
<i>Culcita macrocarpa</i> C. Presl (2.5.7.9). P.	Feto abrum — Madeira bracken	Hairs of the rhizome	Hot poultices made of the toasted hairs used as vulnerary and cicatrizant
<b>ELAPHOGLOSSACEAE</b>			
<i>Elaphoglossum semicylindricum</i> (Bow.) Benl. (9.13). E.	Lingua cervina	Leaves	Tea used for relieving coughs and pharyngitis
<b>HYPOLEPIDACEAE</b>			
<i>Pteridium aquilinum</i> (L.) Kohn (2.5). P.	Feiteira — bracken	Whole plant	Tea used as antirheumatic
<b>SELAGINELLACEAE</b>			
<i>Selaginella denticulata</i> (L.) Link (1.2.5.11). P.	Musgo, musgo das searas — clubmoss	Whole plant	Infusion used as antihypertensive, tea for relieving coughs
<b>CONIFERS</b>			
<b>CUPRESSACEAE</b>			
<i>Juniperus cedrus</i> Webb. et Berth. (2.5.13). E.	Cedro, cedro da Madeira	Leaves, galbuli, oil, wood	Crushed leaves, fragments of wood and galbuli used as insecticide or insect repellent

Table 1 (continued)  
List of the medicinal plants of Madeira and Porto Santo<sup>a</sup>

Family species	Common name	Part used	Uses recorded
<b>ANGIOSPERMS</b>			
<b>DICOTYLEDONS</b>			
<b>ACANTHACEAE</b>			
<i>Acanthus mollis</i> L. (1,2,5,9). P.	Erva-gigante, herva-gigante, gigante — bear's-breech	Leaves	Crushed leaves externally applied on contusions; decoction used as emollient; infusion externally used for erysipelas, sores, tumors, wounds and as an anti-inflammatory for swollen legs; poultices for intestinal troubles, tea used in gargles for relieving toothache and inflammations of the mouth
<b>BORAGINACEAE</b>			
<i>Borago officinalis</i> L. (2,5,9). P.	Borragem — borage	Leaves	Bronchitis is treated with very hot infusions, decoction taken as a diuretic, emollient and perspiratory
<i>Echium nervosum</i> Ait. (2,5,11). E.	Maçaroco, maçaroco, massaroco — pride of Madeira	Leaves, wood	Vapors inhaled as a sedative
<b>BUXACEAE</b>			
<i>Buxus sempervirens</i> L. (1,2,5,9). P.	Buxo — box	Roots, stems, leaves	Decoction externally applied as antirheumatic, infusion used as a sedative and tranquilizer
<b>CALLITRICHACEAE</b>			
<i>Callitriche stagnalis</i> Scop. (9,11). P.	Lentilha de agua, lentilhas da água — common water-starwort	Leaves	Infusion used as aperitive and diuretic
<b>CAPRIFOLIACEAE</b>			
<i>Lonicera etrusca</i> Santi (2,5,11). P.	Madre silva, madressilva — honeysuckle	Seeds	Ground seeds rubbed to treat warts
<i>Sambucus lanceolata</i> R.Br. in Buch (1,2,5,9,13). E.	Sabugueiro — Madeira elder	Fruits	Flower infusion gargled for sore throat and toothache; also as a diuretic, emollient; flower decoction for open sores; leaves externally applied in poultices on bruises, wounds and sores

## CLUSIACEAE

- Hypericum glandulosum* Ait. (2,5,13). E. Hipericão, malfurada Whole plant Infusion used as a diuretic, to treat urinary bladder diseases, kidney and liver diseases; tea for lithemia
- Hypericum humifusum* L. (2,9). P. Hipericão, malfurada Whole plant Infusion used as a diuretic; to treat kidney diseases; tea for lithemia and urinary bladder diseases
- Hypericum inodorum* Miller (2,5). E. Malfurada Whole plant Infusion to treat kidney diseases
- Hypericum perforatum* L. (2,7,9,10). P. Flor de São João, hipericão, pelicão — Perforate St. John's-wort Whole plant Tea as a diuretic for gout, lithemia, antirheumatic, urinary bladder diseases; infusion for kidney diseases

## COMPOSITAE

- Achillea ageratum* L. (5,8,9,11). P. Macela — sweet yarrow Whole plant Infusion as an aperitive; externally applied for baldness and conjunctivitis; taken as eupeptic, for lack of appetite; also as a stomachic, tonic
- Ageratina adenophora* (Spreng.) King et Robins (2,9,10). T. Abundância, inça-muito Leaves Decoction emollient, galactagogue for cows and goats; crushed leaves used as an insecticide against fleas
- Arctium minus* (Hill.) Bern. (2,5,9). P. Tejeira — lesser burdock Leaves Dermatitis treated by drinking the infusion
- Artemisia argentea* L'Hérit. (1,2,5,9,11,13). E. Losna — Madeira wormwood Leaves Infusion used as a vermifuge, stomachic, treatment for apoplexy and as an emmenagogue; tea as a tonic, sudorific, aperitive; leaves burnt for producing smoke and treating apoplexy (long term use)
- Bidens pilosa* L. (2,5,9,10). T. Amor de burro, setas, malpica Leaves Used as baths to treat dysentery; tea as emmenagogue; leaves crushed or decocted, externally applied for the cure of wounds
- Chamaemelum mixtum* (L.) All. (7,11). P. Margaças — chamomile Whole plant For colic
- Chamaemelum nobile* (L.) All. var. *discoideum* (Boiss.) P. Silva (1,2,5,9). P. Macéla, marcela — chamomile Flower heads Infusion externally applied as an ophthalmic; taken for lack of appetite; stomachic, tonic
- Cynara cardunculus* L. var. *ferocissima* Lowe (2,5,9,12). P. Cardo, cardos, cardo da gente, pencas — Madeira cardoon Flower heads, leaf rachis Infusion used as a diuretic, considered toxic for calves

Table 1 (continued)  
List of the medicinal plants of Madeira and Porto Santo<sup>a</sup>

Family species	Common name	Part used	Uses recorded
<i>Eriocephalus africanus</i> L. (2,5,8,9,10). T.	Alecrim de nossa senhora, mãosinhas de nossa senhora — Kapok bush	Branches	Branches burnt to relieve apoplexy (long term use), decoction for myalgia, antirheumatic, aromatic baths
<i>Helichrysum melaleucum</i> Rchb. ex Holl. (1,12,13). E.	perpétua, perpétuas	Leaves and flowerheads	Infusion for treating bronchitis; infusion of flowers as cardiotoxic, also for relieving cough, pharyngitis and bronchitis
<i>Helichrysum obconicum</i> DC. (1). E.	Aipo branco, murrião, perpétua	Leaves, flowers	Infusion of leaves used as a digestive, stomachic and for intestinal diseases
<i>Helichrysum orientale</i> (L.) Gaertn. (7). T.	Perpétuas amarelas	Flower heads	Tea used as antiasthmatic and for relieving coughs
<i>Kleinia repens</i> (L.) Haw. (2,5,6,9,10). T.	Balsamo de canudo, balsamo sagrado	Sap, whole plant	Used as an analeptic, in mixtures for anemia, tuberculosis; to relieve pain of burns and strains by drinking or externally applying the sap; also on wounds
<i>Phagnalon saxatile</i> (L.) Cass. (2,5,10). P.	Isca	Sap	Used to poison fish
<i>Tanacetum parthenium</i> (L.) Schulz-Bip (2,5,9,11). P.	Alfinetes de senhora, artemíja, artemísia — ferverfew tansy	Leaves, lower heads	Infusion used as a diuretic, tea as an emmenagogue, stimulant, tonic
CRASSULACEAE			
<i>Aeonium arborescens</i> (L.) Webb et Berthelot (2). P.	Ensaíão	Leaves, sap	Sap applied, during several consecutive nights, as a corn-salve
<i>Aeonium glandulosum</i> (Ait.) Webb et Berthelot (5,10). E.	Ensaíão, farrôbo, saíão	Leaves, sap	Sap used as a corn-salve; externally applied for falls and strokes
<i>Aeonium glutinosum</i> (Ait.) Webb et Berthelot (2,5,9,10,13). E.	Ensaíão, ensaíão de pasta, farrôbo, pastinha, saíão	Stems and sap	Crushed stems ingested or externally applied for lesions produced by falls and wounds
<i>Sedum brissemoretii</i> Raym. (13). E.	Aroz da rocha, erva arroz	Leaves	Used for avian coryza
<i>Sedum farinosum</i> Lowe (2). E.	Erva arroz	Leaves	Used for avian coryza

<i>Sedum nudum</i> Ait. (5). E.	Arroz da rocha, erva arroz	Leaves	Used for avian coryza
<i>Umbilicus rupestris</i> (Salisb.) Dandy (2,5,9). P.	Inhame de lagartixa — Navelwort	Sap	Used as an anticonvulsant, hemostat
<b>CRUCIFERAE</b>			
<i>Eruca vesicaria</i> (L.) Cav. subsp. <i>sativa</i> (Mill.) Thell. (10). P.	Fedorento — garden rocket	Leaves	Used as analeptic, aphrodisiac and tonic
<i>Isatis tinctoria</i> L. (2,5,9). P.	Pastel — woad	Leaves	Crushed leaves externally applied on dermatosis
<i>Lepidium sativum</i> L. (2). P.	Mastruço — garden cress	Leaves, shoots, seeds	Infusion externally applied on dermatosis
<i>Lepidium virginicum</i> L. (5). T.	Mastruço — virginian peppercorn	Leaves	Infusion externally applied on dermatosis
<i>Matthiola maderensis</i> Lowe (2,5,9,10,13). E.	Cravo de burro, cravo de rocha, goivo, goivo branco, goivo bravo, goivo da rocha — Madeira stock	Whole plant	Said to be a poison
<b>CUCURBITACEAE</b>			
<i>Cucurbita ficifolia</i> Bouché (2,5,8). T.	Boganga, bogangas brancas, bogangas rajadas — cidra	Fruits	Used as diuretic, analeptic
<i>Sesquium edule</i> (Jacq.) Swartz (2,5,9,10). T.	Alcaiota, caica, caiota, pepinela, pepinos nelas, pipinelas — chayote	Fruit, tubers, shoots	Infusion used as a diuretic
<b>CUSCUTACEAE</b>			
<i>Cuscuta epithymum</i> (L.) Murray (5,11). P.	Linhaça, linheiro — dodder	Whole plant	Decoction used for bronchitis, as a carminative, diuretic, to treat influenza, as a laxative; applied on wounds
<b>ERICACEAE</b>			
<i>Vaccinium padifolium</i> J.E. Sm. ex Rees (2,5,9,12,13). E.	Uva-da-serra, uveira	Fruits	Juice taken for bronchitis and the common cold, also for relieving cough and dysentery; fruits exported for commercial production of some ophthalmic specialties
<b>EUPHORBIACEAE</b>			
<i>Euphorbia mellifera</i> Ait. (5,10). E.	Alendros, alhendros, alindres, figueira do inferno	Latex	Used as a fish poison

Table 1 (continued)  
List of the medicinal plants of Madeira and Porto Santo<sup>a</sup>

Family species	Common name	Part used	Uses recorded
<i>Euphorbia pephus</i> L. (9). P.	Trovisco — purple spurge	Latex	Externally applied on dermatosis
<i>Euphorbia piscatoria</i> Ait. (2,6,9,10). E.	Alhendros, alindres, figueira do inferno	Latex	Used as a fish poison
<i>Euphorbia platyphylla</i> L. (2,5). T.	Trovisco, trevisco — broad-leaved spurge	Latex	Externally applied on dermatosis
<i>Mercurialis annua</i> L. (2,5,9). P.	Urtiga morta — annual mercury	Whole plant	Laxative, purgative; believed poisonous for rabbits
<b>FUMARIACEAE</b>			
<i>Fumaria muralis</i> Sond. ex Koch (2,4,5,9,10). P.	Erva-pombinha, molarinha, moleirinha — common ramping — fumitory	Whole plant	Infusion drunk for dermatosis
<b>GERANIACEAE</b>			
<i>Geranium robertianum</i> L. (7,11). P.	Erva de São Roberto, erva de pé de galinha, pássara, pé de pombo — Herb-Robert	Whole plant	Infusion taken as a blood depurative, after crushing and mixing with egg yolk; infusion taken for tumors and stomach ulcers; also externally applied on open sores
<i>Pelargonium inquinans</i> (L.) L'Hérit. (2,5). T.	Malvas, malvas bravas	Whole plant	Tea as an antipyretic, emollient, for relief of influenza, open sores; also as gargles for a sore throat
<b>JUGLANDACEAE</b>			
<i>Juglans regia</i> L. (2,5,9). P.	Nogueira — walnut	Leaves, fruits, fruit rinds	Tea taken daily for a whole year to treat lymphadenitis; infusion externally applied on dermatosis; eating daily the ripe fruits was recommended for preventing heart diseases; infusion taken over a long term is used as a blood depurative
<b>LABIATAE</b>			
<i>Bystrupogon maderensis</i> Webb (13). E.	Quebra panela	Leaves	Infusion used as a sedative, somnifacient, tonic



<i>Cedronella canariensis</i> (L.) Webb et Berth. (9,10,13). E.	Hortelá de burro, hortelá de cabra, mentastro	Whole plant	Infusion as a sedative, antispasmodic, digestive, for relieving high blood pressure and spasms, claimed to protect liver, grown to harvest its essential oil
<i>Lavandula angustifolia</i> L. (1,5). P.	Alfazema — lavender	Whole plant, leaves	Infusion used for apoplexy and as stomachic; leaves burnt for producing smoke and treating apoplexy (long term use)
<i>Lavandula dentata</i> L. (7,9). P.	Rosmaninho — toothed lavender	Whole plant	Infusion used for apoplexy, analgesic, tonic
<i>Lavandula pedunculata</i> Cav. (5,7). P.	Rosmaninho — Spanish lavender	Whole plant	Infusion used for apoplexy; analgesic, tonic; leaves burnt for producing smoke and treating apoplexy (long term use)
<i>Lavandula viridis</i> L'Hérit. (1,9,12). P.	Romarinho bravo, rosmaninho-verde — Portuguese lavender	Whole plant	Infusion used to treat troubles of the circulatory system, for influenza and for relieving headache
<i>Marrubium vulgare</i> L. (2,5,9). P.	Marroios — white horehound	Whole plant	Infusion used for bronchitis, as an emmenagogue, to treat liver diseases; also as a stimulant, tonic
<i>Mentha aquatica</i> L. (2,9). P.	Sândalos, mentastro — water mint	Whole plant	Tea used as an antitussive, antiasthmatic, digestive, vermifuge
<i>Micromeria varia</i> Benth. subsp. <i>thymoides</i> (Soland.) Pérez (2,5,9,13). E.	Hisopo, hissopo	Whole plant	Infusion or tea used to treat bronchitis, as an expectorant, tonic, antispasmodic
<i>Origanum virens</i> Hoff. et Link (5,11). P.	Oregãos — Portuguese marjoran	Bracts, leaves	Infusion used as an antispasmodic, emmenagogue, stomachic
<i>Prunella vulgaris</i> L. (2,5,9,16). P.	Erva férrea, herva férrea — selfheal	Sap	Externally applied for cleansing open sores and wounds
<i>Salvia officinalis</i> L. (2,5,9). P.	Salva — garden sage	Whole plant	Hot infusion used for bronchitis; tea as an emmenagogue, stomachic, tonic
<i>Salvia fruticosa</i> Miller (1). P.	Salva — Greek sage	Leaves	Infusion used for relieving headache, also for the circulatory system
<i>Sideritis candicans</i> Ait. (2,5,7,9,12). E.	Herva branca, selvageira, selvajeira	Whole plant	Tea or hot infusion used for bronchitis and for relieving cough; tea used for intestinal diseases; digestive
<i>Stachys byzantina</i> C. Koch (1). P.	Orelhas de gato	Leaves	Infusion used as an antiasthmatic; also for circulatory system diseases and for treating varicose veins
<i>Teucrium betonicum</i> L'Hérit. (2,5,9,10,13). E.	Abrotona, erva branca, herva branca	Whole plant	Infusion used as a stomachic, tonic

Table 1 (continued)  
List of the medicinal plants of Madeira and Porto Santo<sup>a</sup>

Family species	Common name	Part used	Uses recorded
<i>Thymus caespititius</i> Brot. (5,8,10). P.	Alecrim da serra, hisopo	Whole plant	Infusion used for apoplexy
<i>Thymus vulgaris</i> L. (1,2,5,7,9). P.	Cheiros, segurelha — common thyme	Whole plant	Infusion used as a sleep inducer; tea for relieving headache; baths as uterine stimulant during childbirth
<b>LAURACEAE</b>			
<i>Cinnamomum camphora</i> (L.) J.S. Presl (2,8). T.	Camphoreiro, canforeira — camphor tree	Leaves	Bronchitis treated by rubbing leaves macerated in rum
<i>Laurus azorica</i> (Seub.) Franco (2,5,7,9,11,13). E.	Loireiro, loiro, loureiro, louro — Madeira laurel	Leaves, oil extracted from the fruits, fruits	Fruits or oil internally or externally applied as an anti-infective skin preparation; oil externally applied as anti-rheumatic and vulnerary; internally taken as a blood depurative, also for apoplexy; oil and salt used for treating boils, also used as an haemostatic; tea of fruits used for influenza and pustules; oil and turpentine applied in poultices for troubles of the respiratory system; stomachic, sore throat; infusion of leaves for relieving common cold and sudorific; leaves burnt for producing smoke and treating apoplexy (long term use)
<i>Ocotea foetens</i> (Ait.) Ball. (2,5,7,12,13). E.	Til, til branco, til preto	Branchlets, leaves, fruits, wood	Infusion of leaves or tea of fruits as an antihypertensive; malignant diseases treated with poultices made of tender leaves and branchlets
<b>LEGUMINOSAE</b>			
<i>Cytisus scoparius</i> (L.) Link (5). P.	Giesta — broom	Pods, stems, branches	Infusion used to treat liver diseases
<i>Lens culinaris</i> Med. (11). P.	Ervilha, lentilha — lentils	Seeds	Infusion of roasted seeds taken as a diuretic; resolutive poultices made of the ground seeds
<i>Lupinus albus</i> L. (2,5,9,10). P.	Tremoceiro, tremoço — white lupine	Seeds	Anti-inflammatory poultices made of the pounded seeds; decoction used as an insecticide
<i>Psoralea bituminosa</i> L. (5,7). P.	Fedigose, fedegoso	Leaves	Decoction with alcohol and iodine applied externally as a hair restorer
<i>Trifolium squamosum</i> L. (7). P.	Trevo de passa, trevo de pé de passaro	Whole plant	Tea used as a sudorific

<i>Trifolium pratense</i> L. (5,13). P.	Trevo — red clover	Whole plant	Used for avian coryza
<i>Ulex europaeus</i> L. (2,5,8,12). P.	Carqueja — gorse	Flowers	Infusion with sugar cane liquor used as antirheumatic, also to treat liver diseases
<i>Vicia faba</i> L. (5). P.	Fava — broad bean	Pods	Used to treat liver diseases, also as an analeptic
LINACEAE			
<i>Linum usitatissimum</i> L. (2,5,9). P.	Linho, linhaça — flax	Seeds	Infusion used as a diuretic and for liver diseases; decoction taken 6 times a day for urinary bladder inflammation; poultices made with the ground seeds applied for respiratory troubles
MALVACEAE			
<i>Malvastrum coromandelianum</i> (L.) Gareke (2,9). T.	Chá bravo	Leaves	Decoction used for cleansing open sores; infusion mixed with <i>Bidens pilosa</i> used for baths to relieve dysentery
<i>Sida rhombifolia</i> L. (5,10,14). T.	Chá bravo, Cháingleza, planta do chá — broomjue sida	Flowers, leaves	Decoction used for cleansing open sores; infusion mixed with <i>Bidens pilosa</i> used for baths to relieve dysentery; infusion as an emollient
MYRTACEAE			
<i>Eugenia uniflora</i> L. (2,5,9,12). T.	Pitanga, pitangueira — Pitanga	Leaves, fruits	Tea for bronchitis, for relieving cough, for influenza; fruits eaten for intestinal troubles
<i>Myrtus communis</i> L. (5,6,11). P.	Murta — myrtle	Young shoots	Infusion for apoplexy
<i>Psidium cattleianum</i> Sabine (2,5,7,8,9). T.	Araçá, araçá roxo, erva saleira — strawberry guava	Leaves, fruits	Infusion of leaves used as an astringent; tea taken for dysentery
<i>Psidium littorale</i> Raddi (8,9). T.	Araçá amarelo — yellow guava	Leaves, fruits	Infusion of leaves used as an astringent, fruits used as an astringent
<i>Syzygium jambos</i> (L.) Alston (2,5,9). T.	Jambeiro, jambo — rose apple	Leaves, fruits, seeds	Tea or infusion of the leaves used as antidiabetic (long term)
OLEACEAE			
<i>Olea europaea</i> L. var. <i>maderensis</i> Lowe (1,9,13). E.	Oliveira, oliveira brava, oliveira da rocha, zambujeiro — Madeira olive tree	Leaves	Infusion used as an antihypertensive

Table 1 (continued)  
List of the medicinal plants of Madeira and Porto Santo<sup>a</sup>

Family species	Common name	Part used	Uses recorded
<b>OXALIDACEAE</b>			
<i>Oxalis corniculata</i> L. (2,5,9). T.	Bolsa de pastor — procumbent yellow — sorrel	Whole plant	Crushed leaves applied on dermatosis; the infusion drunk as a blood depurative
<b>PASSIFLORACEAE</b>			
<i>Passiflora edulis</i> Sims (2,5,9). T.	Maracujá, maracujá roxo — purple granadilla	Fruits	Eaten for stomachache and for the treatment of intestinal tumors
<b>PITOSPORAEEAE</b>			
<i>Pitosporum undulatum</i> Vent. (2,5). T.	Árvore do incenso	Whole plant	Crushed and applied in poultices to repair muscles, tendons and ligaments strained or torn by violent movement
<b>PLANTAGINACEAE</b>			
<i>Plantago coronopus</i> L. (2,5,9). P.	Diabelha — buck's-horn plantain	Leaves	Infusion gargled to relieve sore throat
<i>Plantago lanceolata</i> L. (2,5,7,9). P.	Orelha de cabra, tanchagem — ribwort plantain	Leaves, sap	Leaves varnished with fat applied for conjunctivitis and furunculosis; decoction or juice used as eye drops for conjunctivitis; decoction or crushed leaves applied in poultices for cleansing open sores
<i>Plantago major</i> L. (2,5,7,9). T.	Tanchagem — greater plantain	Leaves	Juice used as an anti-inflammatory; decoction used as eye drops, also for furunculosis, emollient; decoction or crushed leaves applied in poultices for cleansing open sores
<b>POLYGONACEAE</b>			
<i>Polygonum aviculare</i> L. (5,9). P.	Sempre noiva — knotgrass	Whole plant	Tea rubbed as an antirheumatic; infusion used as a diuretic
<i>Rumex maderensis</i> Lowe (5,7,9,13). E.	Azedas, labação — Madeira sorrel	Leaves	Used for avian cholera; infusion used as a diuretic and blood depurative; externally applied in poultices for dermatosis

<b>PORTULACACEAE</b>				
<i>Portulaca oleracea</i> L. (2,5). P.	Baladroegas, beldroegas — common purslane	Whole plant	Used as a laxative and purgative	
<b>PUNICACEAE</b>				
<i>Punica granatum</i> L. (2,5,9). P.	Romá, romeira — pomegranate	Bark, roots, fruits	Infusion of flower buds and fruit rind used for amygdala and sore throat; infusion as a diuretic, as an astringent; infusion of roots, bark and shoots used as a taeniafuge; tea of the rinds used for dysentery	
<b>RANUNCULACEAE</b>				
<i>Consolida ambigua</i> (L.) P.W. Ball et Heywood (5,10). P.	Ciúmes — larkspur	Whole plant	Crushed and applied in poultices as an emollient	
<b>ROSACEAE</b>				
<i>Duchesnea indica</i> (Andr.) Focke (5). T.	Morangueiro-bravo	Leaves and rhizomes	Infusion used as a remedy for jaundice	
<i>Prunus lusitanica</i> L. subsp. <i>hixa</i> (Willd.) Franco (2,5). E.	Ginjeira, gingeira brava — Portugal laurel	Shoots, stems, wood	Decoction used for dysentery	
<i>Rosa moschata</i> Mill. (2,5,9). P.	Rosa mosqueta	Fruits	Tea used for apoplexy, also as a laxative and a purgative	
<i>Rubus hollei</i> Focke (2,5,13). E.	Silvado	Leaves, shoots, fruits	Syrup of fruits used as an astringent for children; decoction of tender shoots used as an astringent, also as a remedy for diabetes, as a vulnerary, depurative, diuretic and analeptic; gargled for relieving sore throat	
<i>Rubus grandifolius</i> Lowe (13). E.	Silvado	Leaves, shoots, fruits	Syrup of fruits used as an astringent for children; decoction of tender shoots used as an astringent, also as a remedy for diabetes, as a vulnerary, depurative, diuretic and analeptic; gargled for relieving sore throat	
<i>Rubus inermis</i> Pourr. (2,7,9,13). P.	Amora de silva, silvado	Leaves, shoots, fruits	Tea of flowers and fruits used as an astringent, for dysentery; syrup of fruits used as an astringent for children; decoction of tender shoots used as an astringent, also as a remedy for diabetes, as a vulnerary, depurative, diuretic and analeptic; gargled for relieving sore throat	

Table 1 (continued)  
List of the medicinal plants of Madeira and Porto Santo<sup>a</sup>

Family species	Common name	Part used	Uses recorded
<b>RUBIACEAE</b>			
<i>Rubia perigrina</i> subsp. <i>agostinhoi</i> (Dans et Silva) Valdés et López (2,5,8,9,12). P.	Ruivinha — Madeira wild madder	Roots	Infusion taken as an analeptic
<b>RUTACEAE</b>			
<i>Ruta chalepensis</i> L. (2,5,9). P.	Arruda — fringed rue	Flowers, leaves	Tea for apoplexy and relieving toothache; baths with the infusion for uterus troubles; leaves burnt for producing smoke and treating apoplexy (long term use)
<b>SALICACEAE</b>			
<i>Salix canariensis</i> Chr. Sm. ex Link (2,5,8). E.	Seixo, seixeiro — Canary willow	Roots, wood	Decoction for relieving toothache
<b>SAPOTACEAE</b>			
<i>Sideroxylon marmulano</i> Banks ex Lowe var. <i>marmulano</i> (11,13). E.	Marmulano	Bark, leaves	Bark macerated in alcohol is rubbed for relieving pains
<b>SAXIFRAGACEAE</b>			
<i>Hydrangea macrophylla</i> (Thunb.) Sér. (2,5,10). T.	Hortênsia, novelos	Leaves	Crushed leaves used in poultices as an emollient; tender leaves and garlic applied in poultices for relieving bites as an anti-inflammatory
<b>SCROPHULARIACEAE</b>			
<i>Sibthorpia peregrina</i> L. (2,5,9,10,13). E.	Era terrestre, erva redonda, hera terrestre, herva terrestre, hera redonda — moneywort	Leaves	Hot infusion for bronchitis; tea used for relieving cough and as an expectorant; decoction used for bronchitis and cough; juice externally applied as a corn salve
<i>Verbascum pulverulentum</i> Vill. (5,9). P.	Verbasco — hoary mullein	Leaves, flowers	Decoction used as an emollient; tea for bronchitis and common cold
<i>Verbascum sinuatum</i> L. (7,9). P.	Verbasco — mullein	Leaves, flowers	Decoction used as an emollient; tea for bronchitis and common cold

<i>Verbascum thapsus</i> L. (9). P.	Verbasco — great mullein	Leaves, flowers	Decoction used as an emollient
<b>SOLANACEAE</b>			
<i>Brugmansia suaveolens</i> (H.B.K. ex Willd.) Bercht et Presl (2.5.12). T.	Belas-noites, trombeteira	Leaves	Decoction used as an emollient, externally applied as an anti-rheumatic
<i>Lycium europaeum</i> L. (2.5.9). P.	Espicheiro, espinheiro — wolfberry	Leaves	Tea or infusion used as a diuretic
<b>TAMARICACEAE</b>			
<i>Tamarix gallica</i> L. (2.5). P.	Tamargueira — tamarisk	Shoots	Decoction of shoots used as an haemostat by fishermen
<b>ULMACEAE</b>			
<i>Celtis australis</i> L. (2.5). P.	Sementeira — hackberry	Fruits	Fruits or fruit tea used as a laxative and purgative
<b>UMBELLIFERAE</b>			
<i>Crithmum maritimum</i> L. (2.5.9,12). P.	Perrexil, perrixil — rock samphire	Leaves	Infusion used as a diuretic and stomachic
<i>Daucus carota</i> L. (2.5). P.	Cenoura — carrot	Whole plant	Tea for jaundice
<i>Foeniculum vulgare</i> Miller (1,2,5). P.	Erva doce, funcho — fennel	Fruits, dried leaves	Hot infusion of fruits for bronchitis; tea of seeds, leaves and <i>Limax</i> sp. used as a galactagogue; infusion of dry leaves for relieving coughs; leaf tea used as stimulant, stomachic
<i>Monizia edulis</i> Lowe (2.5.9,10). E.	Cenoura arbórea, cenoura da rocha, nozelha	Rhizome, stems	Cooked and eaten as a digestive
<b>URTICACEAE</b>			
<i>Parietaria judaica</i> L. (2.9). P.	Alfavaca, alfavaca de cobra — pellitory-of-the-wall	Whole plant	Infusion used as an haemostatic, for hemorrhoids; tea of the whole plant and cinnamon bark used for dysentery; infusion for relieving sore throat
<i>Urtica membranacea</i> Poir. (2.8.9). P.	Urtigas vivas	Whole plant	Infusion drunk for dermatosis, externally applied in poultices for eczema
<i>Urtica urens</i> L. (5.8). P.	Urtiga viva — small nettle	Whole plant	Infusion drunk for relieving dermatosis; externally applied in poultices for eczema; tea externally applied for erysipelas, also for influenza

Table 1 (continued)  
List of the medicinal plants of Madeira and Porto Santo<sup>a</sup>

Family species	Common name	Part used	Uses recorded
<b>VERBENACEAE</b>			
<i>Verbena officinalis</i> L. (2,5,9). P.	Urgebão, jarvão — vervain	Leaves	Infusion used as a diuretic, also for liver diseases
<b>VIOLACEAE</b>			
<i>Viola odorata</i> L. var. <i>maderensis</i> (Lowe) Webb (2,5,9). E.	Violeta — Madeira sweet violet	Leaves, flowers	Decoction of leaves or flowers, or both, used as an emollient and a laxative; tea of flowers for relieving cough
<i>Viola tricolor</i> L. (9). P.	Amor perfeito — pansy	Leaves, flowers	Infusion externally applied for dermatosis
<b>MONOCOTYLEDONS</b>			
<b>AGAVACEAE</b>			
<i>Dracaena draco</i> L. (2,5,7,13,16). E.	Dragoeiro — dragon's blood tree	Sap	Dried exuded sap, after being pounded and diluted in brandy, drunk or externally applied as haemostatic, also to cure strokes
<i>Phormium tenax</i> J.R. et G. Forst (2,5,9,10). T.	Amarradeira, atadeira, atadouro, barão, espadana, linho-ruso — New Zealand flax	Leaves	Leaves after being crushed or their extracted juice, externally applied for tumors
<b>ARACEAE</b>			
<i>Colocasia esculenta</i> (L.) Schott (2,7). T.	Inhame, inhame de enxerto — dasheen	Rhizome	Cooked and eaten for treating acidity of the gastric juice and intestinal diseases
<b>CYPERACEAE</b>			
<i>Cyperus rotundus</i> L. (2,5). P.	Coquinho — galingale	Tubers	Laxative; tubers used as poison for fishing after being pounded with corn flour and olive oil
<b>GRAMINEAE</b>			
<i>Avena strigosa</i> Schreb. (2,5). P.	Aveia — bristle oat	Seeds	The flour mixed with wheat, rye, onions, beans and snails is used to treat anemia



## LEMNACEAE

*Lemna gibba* L. (9,11). P.

Lentilha de agua, pastinha de agua, patinha d'agua — fat duckweed

Whole plant

Infusion used as a diuretic

## LILIACEAE

*Scilla maderensis* Lowe (2,5,13). E.

Cebola albarrá, cila da Madeira

Bulbs

Hung over the bed of the sick persons to overcome erysipelas

## ORCHIDACEAE

*Dactylophiza foliosa* (Verm.) Soó (2,5,11). E.

Orquídea

Tubers

Furnish a kind of salep, used as a tonic

<sup>a</sup>The first column includes, after the scientific names, a coded reference for the sources of information and the geographic origin of the plant. Code for references: 1, Rivera and Obón (1995, in press); 2, Branco (1935a,b,c); 3, Branco (1941a,b,c,d,e,f); 4, Branco (1942a,b,c,d); 5, Branco (1950); 6, Branco (1954); 7, Pereira (1967a,b); 8, Menezes (1914); 9, Silva and Menezes (1984a,b,c); 10, Oliveira (1960); 11, Oliveira (1961); 12, Oliveira (1963); 13, Vieira (1992); 14, Lowe (1857–68); 15, Lowe (1872); 16, Viera (1982). Geographical categories: E, endemic to Macaronesia; P, Mediterranean or Mediterranean species widespread in Portugal; T, exotic species introduced from tropical regions. The English names have been adopted following Dony et al. (1986), Griffiths (1994) and Uphof (1968). The following well known medicinal or poisonous taxa have also been locally used: ADIANTACEAE, *Adiantum capillus-veneris* L.; EQUISETACEAE, *Equisetum telmateia* Ehrh.; CUPRESSACEAE, *Cupressus sempervirens* L.; PINACEAE, *Pinus pinaster* Sol.; TAXACEAE, *Taxus baccata* L.; AMARANTHACEAE, *Achyranthes aspera* L.; ANACARDIACEAE, *Mangifera indica* L.; CACTACEAE, *Opuntia tuna* (L.) Miller; CAPRIFOLIACEAE, *Sambucus ebulus* L.; CARICACEAE, *Carica papaya* L.; CARYOPHYLLACEAE, *Silene vulgaris* (Moench) Garcke; CHENOPODIACEAE, *Beta vulgaris* L.; *Chenopodium ambrosioides* L., *Suaeda vera* J. F. Gmel.; COMPOSITAE, *Compositae*, *Achillea millefolium* L., *Anthemis cotula* L., *Calendula officinalis* L., *Lactuca sativa* L., *Santolina chamaecyparissus* L.; CONVOLVULACEAE, *Ipomoea batatas* (L.) Lam.; CRUCIFERAE, *Brassica napus* L., *Brassica oleracea* L. convar. *acephala* DC., *Brassica rapa* L. subsp. *rapa*, *Coronopus didymus* (L.) Sm., *Nasturtium officinale* R.Br.; *Sinapis alba* L., *Sinapis arvensis* L.; CUCURBITACEAE, *Citrullus lanatus* (L.) Schrad., *Cucumis melo* L., *Cucumis sativus* L., *Cucurbita pepo* L.; ELEAGNACEAE, *Eleagnus angustifolia* L.; EUPHORBACEAE, *Euphorbia pulcherrima* Willd.; *Ricinus communis* L.; FAGACEAE, *Castanea sativa* Mill.; *Quercus robur* L.; *Quercus ilex* L.; *Quercus suber* L.; *Globularia* *salicina* Lam.; LABIATAE, *Majorana hortensis* Moench, *Melissa officinalis* L., *Mentha longifolia* Huds., *Mentha pulegium* L., *Mentha spicata* L., *Mentha suaveolens* Ehrh., *Ocimum basilicum* L., *Rosmarinus officinalis* L.; LAURACEAE, *Cinnamomum zeylanicum* Garc. ex Blume, *Persea gratissima* Gaertn.; LEGUMINOSAE, *Ceratonia siliqua* L., *Cicer arietinum* L.; MALVACEAE, *Hibiscus rosasinensis* L., *Lavatera cretica* L., *Malva parviflora* L., *Malva sylvestris* L.; MARANTACEAE, *Maranta arundinacea* L.; MORACEAE, *Ficus carica* L., *Ficus stipitata* L., *Morus nigra* L.; MYRTACEAE, *Eucalyptus globulus* Labill.; *Eugenia caryophyllus* (Sprengel) Bullock et Harrison, *Psidium guajava* L.; NYCTAGINACEAE, *Bougainvillea spectabilis* Willd., *Mirabilis jalapa* L.; PAPAYERACEAE, *Chelidonium majus* L., *Papaver rhoeas* L., *Papaver somniferum* L.; PLATANACEAE, *Platanus occidentalis* L.; RANUNCULACEAE, *Aquilegia vulgaris* L.; ROTACEAE, *Agrimonia eupatoria* L., *Cydonia oblonga* Miller, *Fragaria vesca* L., *Malus domestica* Borkh., *Prunus avium* L., *Prunus domestica* L., *Prunus lauro-cerasus* L.; RUTACEAE, *Citrus aurantium* L., *Citrus limon* (L.) Burm. f., *Citrus medica* L., *Citrus sinensis* (L.) Osbeck; SCROPHULARIACEAE, *Digitalis purpurea* L.; SOLANACEAE, *Capiscum baccatum* L., *Capiscum frutescens* L., *Datura stramonium* L., *Hyoscyamus albus* L., *Nicotiana tabacum* L., *Solanum nigrum* L., *Solanum tuberosum* L.; TILIACEAE, *Tilia tomentosa* Moench.; TROPAEOLACEAE, *Tropeolum majus* L.; UMBELLIFERAE, *Apium graveolens* L., *Apium nodiflorum* L., *Coriandrum sativum* L., *Petroselinum crispum* (Miller) Nyman; VERBENACEAE, *Aloysia triphylla* (L'Her.) Brit., *Verbena bonariensis* L.; VITACEAE, *Vitis vinifera* L.; ARACEAE, *Colocasia antiquorum* Schott.; GRAMINEAE, *Bambusa glaucescens* (Willd.) Sieb. ex Munro, *Cymbopogon citratus* (DC.) Stapf, *Cynodon dactylon* (L.) Pers., *Elytrigia repens* (L.) Nevski, *Hordeum vulgare* L., *Hyparrhenia hirta* (L.) Stapf, *Phyllostachys nigra* (Lodd. ex Lindl.) Munro, *Saccharum officinarum* L., *Sorghum halepense* (L.) Pers., *Triticum aestivum* L., *Triticum turgidum* L., *Zea mays* L.; IRIDACEAE, *Crocus sativus* L.; LILIACEAE, *Allium cepa* L., *Allium sativum* L.; MUSACEAE, *Musa acuminata* Colla; ZINGIBERACEAE, *Hedychium gardnerianum* Rosc.

Table 2  
Geographic groups in the whole of the vascular flora of Madeira compared with the groups in the medicinal flora<sup>a</sup>

Geographic groups	Total (Gf)	Percentage (Gf/Tf)	Medicine (Gm)	Percentage (Gm/Tm)	Percentage (Gm/Gf)
Macaronesian endemics	203	16.79	39	15.05	19.21
Mediterranean and Mid-European	676	55.91	151	58.30	22.33
Exotic	330	29.29	69	26.66	20.90
Total	Tf <sup>b</sup>		Tm <sup>b</sup>		Percentage Tm/Tf
Flora of Madeira	1209		259		21.42

<sup>a</sup>data from Menezes, 1914; Hansen, 1969 and Hansen and Sunding, 1985; <sup>b</sup>Tf, total species in the flora; Tm, total used medicinally.

several contributions by Hansen (1968, 1969b, 1970b). Hansen and Sunding (1985) have been followed, as far as this was possible, in the nomenclature of vascular plants. The name of *Laurobasidium* was confirmed according to Perreau (1988).

### 3. Medicinal uses

The list of plants with their medicinal uses is presented in Table 1. For reasons of space the common species are not covered in detail and a list of these is given in the footnote at the end. Some of the recipes recorded from the literature reviewed imply complex mixtures of several plants, and sometimes animals (Rivera and Obón, 1995, in press).

### 4. Discussion and conclusions

The Madeira ethnopharmacology is based on three geographical groups of plants (Table 2): (a) 39 species endemic to Macaronesia, some of which are endangered or may have become extinct in the wild, such as *Monizia edulis* Lowe (Vieira, 1992); (b) 151 Mid-European and Mediterranean species, with uses similar to those which were common in Portugal; (c) 69 exotic species, mainly from African Portuguese Colonies, Brazil and the West Indies.

The only medicinal product obtained from a local Madeiran plant which reached some worldwide attention was the 'Dragon's Blood' of the

Canary Islands and Madeira. This is the resin which exudes from incisions made in the stem of the dragon tree (*Dracaena draco*); it was one of the valued products collected by the voyagers in Madeira and Porto Santo in the 15th century. Clusius (1576), gave a detailed description and a figure of this plant, based on a Madeiran tree grown in Lisbon. Vandelli (1768) and Viera (1982), reported the haemostatic and vulnerary properties of this resin, which was also used for the cure of dysentery, gonorrhoea and toothache.

Other Macaronesian endemic growing plants in Madeira have been included in medicinal plant encyclopedias. For instance Dragendorf (1898) cited *Aeonium glutinosum* (source of glue), *Euphorbia piscatoria* (purgative), *Laurus azorica* (for the oil of its fruits), *Ocotea foetens* (the red sap has an unbearable odour), *Vaccinium padifolium* (edible fruits).

Among the 1209 species of the Flora of Madeira and Porto Santo, 259 (21.42%) have been used for medicine (Table 2). This level of medicinal use is extremely high when compared with data from the Iberian Peninsula in which only about 10% of its flora are used for medicinal purposes (Font Quer, 1981; González Tejero, 1989; Mulet, 1991; Rivera et al., 1994b). It is noteworthy that, although the differences between geographical groups is slight, the more familiar groups for the Portuguese were also the more frequently used for medicine in Madeira, namely, the Mid-European and Mediterranean plants. The high level of endemism within the medicinal flora (15.05%) is only slightly lower

than the 16.79% corresponding to the whole of the flora, thus suggesting the ability of the local population to exploit its medicinal resources. About 40% of the medicinal species used by the Madeira peasants in the 20th century were absolutely unknown to their ancestors in the 16th century.

Recently, a project was undertaken for the chemical study of Madeiras endemic flora, with participation of the Lisbon University and the Funchal Botanic Garden. A first step in this project was the study of the essential oil composition of *Tolpis macrorhiza* (Lowe) Lowe (Compositae) by Figueiredo et al. (1994). The flavonic compounds of a *Davallia* species have been shown to be active antineoplastic agents (Cui et al., 1990, Cui et al., 1992) and similar research with *Davallia canariensis* would be worthwhile. The presence of antimutagens in *Acanthus ebracteatus* Vahl (Acanthaceae) has been shown by Rojanapo et al. (1990) and these or similar substances could explain some of the uses reported for *Acanthus mollis* L.. A honeysuckle (*Lonicera* sp., Caprifoliaceae) producing a contact dermatitis has been recently reported (Webster, 1993) and presumably this activity is connected with the use made of this plant in Madeira. Xiao et al. (1990) have demonstrated the immunopotentiator activity of some *Cuscuta* species in mammals; this same activity should be investigated in the case of the Madeira plant. Anti-infective agents of the polyphenol group have been detected in several *Geranium* species (Geraniaceae) (Ivancheva et al., 1992) and presumably are responsible for the vulnerary properties of *Geranium robertianum*.

The endemic species *Bystropogon madeirensis* (Labiatae) has been investigated for its essential oil and antimicrobial activity. Its essential oil monoterpene ketones were characterised as the main constituent, and pulegone was found to be the most active compound of the monoterpene ketones in antimicrobial tests using several species of bacteria and fungi (Economou and Nahrstedt, 1991). A noteworthy inhibition of some Gram positive bacteria has also been shown by extracts of *Cedronella canariensis* (L.) Webb et Berth. (Labiatae) (López et al., 1992). The local sedative uses of several *Lavandula* species, in order to minimise stressful situations, could be interpreted

in the light of the activity of the linalool, a major component of their essential oils, which was recently investigated by Buchbauer et al., (1991) while the parasympholytic activity of *Lavandula dentata* extract has been investigated by Gámez et al., (1990). The essential oil of *Sideritis candicans* Ait. (Labiatae) has been investigated, and from this oil were isolated diterpenes, such as the candol, candidiol, candicandiol, 7-epicandicandiol, 7-acetylepicanandiol, 7-acetyltrachynodiol; triterpenes such as squalene, ursolic acid, oleanic acid; and sterols, such as the campesterol, sitosterol or stigmasterol (Bretón et al., 1969; Rodríguez et al., 1970; González et al., 1973, 1979). González et al. (1978) reported the absence of flavonoids in *Sideritis candicans*, but Gil (1993), working with specimens collected in the Arieiro mountain (Madeira), described the presence of luteolin-glycoside, apigenin-glycoside, and acylated flavonoids. The spasmolytic and antidiarrheal properties of guajava leaf extracts have been demonstrated by Lutterodt (1992), Lozoya et al. (1994) and Morales et al. (1994). These results could explain the wide use made in Madeira of several *Psidium* species as a remedy for dysentery or as an astringent. Zgorniak et al. (1991) have shown the antiviral activity, in in vitro studies, against several influenza strains, of infusions made using *Verbascum thapsiforme* (Scrophulariaceae) flowers. This antiviral activity should justify further investigation of *Verbascum pulverulentum* and *Verbascum sinuatum*, considering the traditional use made of these species in Madeira.

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