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Issue 1

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MEDUSA

Newsletter

Editorial

This is the first issue of the MEDUSA Newsletter devoted to information about the plant life of the Mediterranean region and the many ways in which it is used in human activities. It will include articles and notes about the plants, the organizations involved in their study, utilization and conservation, projects and initiatives, news of meetings held and forthcoming and notices of books and relevant new literature.

The Mediterranean basin has been the cradle of successive civilizations and also one of the major centres of origin and diversification of many plants of agriculture. Nowhere else on this plane have humans been so closely and intimately associated with the environment and perhaps nowhere else has the land so deeply influenced human behaviour and culture: in turn these have shaped the past and present landscapes through transhumance, agriculture, felling of the forests, grazing, fire, terracing, urbanization, tourism and pollution. These fabled shores house about ten percent of the world's total of flowering plants and ferns in 1.6 percent of the earth's land surface and about half of these are endemic to the region.

The MEDUSA Network of the Mediterranean Region was established by CIHEAM-MAICH, with the support of the European Union Directorate General I, for the identification, conservation and

sustainable use of the wild plants of the Mediterranean Region. The Network comprises National Focal Point Coordinators from the countries of the region and also includes representatives of international organizations (CIHEAM-MAICH, IUBS, FAO, IPGRI-WANA, LEAD) that form the Steering Committee. Already it has held two regional workshops, the first in Chania, Greece on 28-29 June 1996 on 'Identification of wild food and non-food plants of the Mediterranean Region' and the second in Hammam-Sousse, Tunisia on 1-3 May 1997 on 'Wild food and non-food plants - Information Networking' at which a series of country profiles were presented and will be included in the Proceedings of the meeting.

The Proceedings of the first Workshop have just been published (see New Publications). A list of priority species has been compiled and that too will be available shortly. Plans are in hand for the design and establishment of an Interactive Regional Information System (MEDUSAIRIS) and details of these and other activities will be given in forthcoming issues of this Newsletter.

The aim of this Newsletter is communication of information and all readers are invited to submit short articles, news or notes that would help achieve this. Welcome to MEDUSA!

VERNON HEYWOOD
Editor and Chair of the MEDUSA
Steering Committee

Activity Reports

News from MEDUSA

The First Regional Workshop, June 1996, Chania, Greece

The Proceedings of the First Regional Workshop have been edited by V. Heywood (Emeritus Professor, University of Reading, UK, Chairman of the Steering Committee of MEDUSA Network) and M. Skoula (MAICH, Executive Secretary of MEDUSA Network). This will be published in the Cahiers Options Méditerranéens Series:
Title: IDENTIFICATION OF WILD FOOD AND NON-FOOD PLANTS OF THE MEDITERRANEAN REGION
Pages: 165, Volume 23, Year 1997, ISSN no: 1022-1379,
400 copies will be printed (publication expected July 1997)

Publication and distribution of a leaflet

A leaflet announcing the establishment of the MEDUSA Network, its aims, objectives and intentions, including information on the data information system and the publication of the Newsletter was published and distributed to experts related with the Mediterranean Region. The distribution of the newsletter was done by MAICH, by the Focal Point Coordinators (FPCs) and by the members of the Steering Committee.

List of Priority species

A specific questionnaire to establish the priority species of the region was designed, following these categories as defined in the MEDUSA objectives. It was distributed and completed by most of the current countries members of the Network. Country members have been asked to select the 100 mostly widely used species of their country. The data obtained from the questionnaires have been entered into a database (ACCESS 2.0) held at MAICH. Currently it holds approximately 1200 entries that correspond to c. 600 different taxa but further data have still to be added. The database is currently being edited and prepared for publication.

The Second Regional Workshop of MEDUSA Network

The second MEDUSA Workshop was held in Port Elkantaoui, Tunisia on May 1st-3rd, 1997. It was attended by representatives from 11 Mediterranean countries and by representatives of various international organizations such as FAO, IUCN, ICUC and ICMAP. A number of scientific presentations were made and Country Reports on the wild plant resources and Governmental and Non-Governmental Organizations involved in any aspects of their study, cultivation, sustainable use, conservation of plant genetic resources used or potential use in agriculture, and habitat conservation and restoration, were presented. The Proceedings are in preparation.

Steering Committee

- Mrs. Melpo SKOULA-JOHNSON, Executive Secretary Mediterranean Agronomic Institute at Chania, GREECE
- Prof. Vernon H. HEYWOOD, ICMAP and DIVERSITAS School of Plant Sciences, The University of Reading, UK, Chair
- Mr. Peter GRIFFEE, FAO, AGPC, Rome, ITALY
- Ass. Prof. L. Jan SLIKKER VEER Leiden University, Institute of Cultural and Social Studies, Leiden, THE NETHERLANDS
- Dr. Yousef BARKOUDAH IPGRI-WANA office, SYRIA
- Mr. Alkinoos NIKOLAIDIS Mediterranean Agronomic Institute at Chania, GREECE

Country Members (Focal Point Coordinators)

Algeria

Mrs. Zahia HOUMANI
Université de Blida, Institut d'Agromonie
Prof. Lahouabi ABED
Centre Hospitalo-Universitaire,
Hopital PARNET, Alger

Egypt

Prof. Mohammed YOUNES HAGGAG
Department of Pharmacognosy,
Faculty of Pharmacy, University of
Cairo, Cairo

France

Dr. Agnes VANNERAU
Laboratoire de Botanique et
Phytochimie, Faculté de
Pharmacie, Chatenay-Malabry
Dr. James MOLINA
Conservatoire Botanique National
Méditerranéenne de Porquerolles,
Institut Botanique, Montpellier

Greece

Ass. Prof. Gregorios IATROU
University of Patras, Department of
Biology, Division of Plant Biology,
Patras
Ass. Prof. Eugenios KOKKALOU
Aristotle University of
Thessaloniki, School of Pharmacy,
Dept. Pharmacognosy, Thessaloniki

Italy

Dr. Domenico PIGNONE
Germplasm Institute, National
Research Council, Bari

Morocco

Prof. Mohammed HMAMOUCHE
Université Mohammed V, Faculté
de Médecine et de Pharmacie, Plant
Médicinales et Aromatiques, Rabat
Prof. Mohammed FENNANE
Institut Scientifique, Agdal, Rabat

Portugal

Prof. Antonio Proença DACUNHA
Department of Pharmacognosy,
University of Coimbra, Coimbra

Spain

Prof. Diego RIVERANUNEZ
Universidad de Murcia,
Departament de Botànica,
Facultat de Biologia, Murcia
Dr. Francisco TOMAS BARBERAN
Centro de Edafología y Biología
Aplicada de Segura, Lab.
Fitoquímica, Murcia

Tunisia

Prof. Rachid CHEMLI
Faculté de Pharmacie de Monastir,
Laboratoire de Pharmacognosie-
Phytothérapie, Monastir

Turkey

Prof. K. Husnu Can BASER
Medicinal and Aromatic Plant and
Drug, Research Centre (TBAM),
Anadolu University, Eskisehir
Dr. Ayse KITIKI
Aegean Agricultural Research
Institute, Medicinal and Aromatic
Plants Section, Izmir

Activity Reports

Fifteen years of the Flora iberica project

**Gonzalo Nieto Feliner,
Real Jardín Botánico, Madrid**

Fifteen years after the project began, the Flora Iberica project has published around 32% of the total number of vascular plant species that it is planned to cover. It is not a fast pace we must admit. However, desirable as it might be, speed of completion has not been our first priority. Rather, for a Flora that had been awaited for such a long time (a hundred years in fact), our main goal was to produce a work which made the waiting worthwhile. That is, to offer not just a modern update of the vascular plant species recorded in our territory but to reach the highest possible scientific standards. To achieve this we needed to guarantee that every generic account was based on original detailed taxonomic research rather than on a mere bibliographic synthesis as is sometimes the case in floristic projects. In a review of volume II, Kai Larsen (Nordic J. Bot. 11:92, 1991) said referring to one of the accounts 'it is almost a monograph on the genus'. This is, in fact, our objective not only to avoid what could otherwise be an officious compilation but also to demonstrate that regional Floras need not necessarily produce locally biased taxonomies as opposed to continental Floras.

There is only a way to try to speed things up while maintaining our requirements for thorough taxonomic revision in each group: widening the number of authors and editors involved. We have moved in this direction and the result is that 135 authors from ten different countries have contributed or are currently working on generic accounts. In fact, our last application for financial support was signed by 37 botanists, 11 of whom will be responsible for the editing of entire families. What is more important is that the editors belong in four different institutions: besides the Botanic Garden of Madrid, which continues to host the Secretariat, the universities of Sevilla, Barcelona, Salamanca and Badajoz.

Plans for the next 5 years include the publication of eight volumes: IX (*Rhamnaceae* to *Polygalaceae*), X (*Araliaceae* and *Umbelliferae*), XI (*Gentianaceae* to *Boraginaceae*), XII (*Labiatae* and *allies*), XIII (*Plantaginaceae* to *Scrophulariaceae*), XIV

(*Myoporaceae* to *Campanulaceae*), XV (*Rubiaceae* to *Dipsacaceae*), and XVIII (*Cyperaceae* to *Pontederiaceae*). Volume VI (*Rosaceae*) is scheduled for autumn 1997 and VII (*Leguminosae*) for the end of 1998.

Prospects for the future continue to be promising both financially and scientifically. Volumes VI and VIII were presented on 28 May 1997 in a public ceremony chaired by the Minister of Education and Culture, Esperanza Aguirre, who with her assistance supported the continuity of the project.

As to the scientific participation, our now middle-aged project is not totally devoid of problems but which scientific endeavour involving such a large number of researchers is not? Paradoxically perhaps, for some of us the health and the strength of the project rests on the now wide participation. If the results of our work continue to be as enthusiastically acknowledged as have been the volumes already published, I think that the project will continue sooner or later, faster or slower towards completion. The demand for this work even increases every time a new volume is published and the rate of ca. 20% more taxa (species + subspecies) than those recognised in the Flora Europaea for the territories covered holds.

Recent innovations include the production of a CD-Rom version of the first four volumes that will be periodically updated. This version incorporates all the information presented in the printed volumes, as well as enabling plant identification without necessarily following the dichotomous keys. Morphological terms can be inputted either in Spanish or English to obtain the best matches. Computer searches using specific restrictions, geographical or descriptive, can also be made and the

corresponding lists generated. Unlike the hard copy, a distribution map that pops-up is provided for each taxon. While not being the perfect electronic solution for a Flora (quantitative characters cannot be used), the system has undeniable advantages and it has been adopted by two such important projects as the Flora of North America and the world-wide Species Plantarum project.

The Spanish ethnobotany groups and MEDUSA

**Diego Rivera and Conchita Obon,
revised by F. Tomas Barberan**

The study of traditional uses of plants in the Iberian Peninsula attracted the interest of Spanish botanists in the first half of this Century. An example of this interest was shown by Dr. Pius Font Quer, who in his *Dioscorides'* book version had gathered much local information, collected by himself and other pharmacists. This task has been reassumed in recent times (beginning of the eighties) by research teams at several Biology and Pharmacy Faculties, Agricultural High Schools and Spanish Research Council Centres (CSIC). Several Ph.D. Theses were presented and other are going on in the fields of General Ethnobotany and Ethnopharmacology.

Much effort has been devoted to improve their cooperation by the different teams working in Spain and in developing common methods.

The International Ethnobotanical Congress held at Cordoba in 1992 was an important meeting point for the different research groups working in Spain, having the opportunity of sharing their experiences with colleagues from abroad, mainly from Southern and Central America. The Cordoba Botanic Garden, with the Museum of Ethnobotany are involved in the exhaustive recovering of ethnobotanical information in Andalusia, mainly from Cordoba and neighbouring provinces. The head of

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this institution is Professor Hernandez Bermejo who is also developing much work in the field of plant conservation. Near Cordoba, at the Granada University in the Dept. of Plant Biology of the Faculty of Pharmacy, Dra. Reyes Gonzalez Tejero, Prof. Joaquin Molero and co-workers have studied thoroughly the traditional medicinal uses of plants in Eastern Andalusia, in a similar way but more recently came in this field the Professors Nieto Caldera of Malaga University and Fernandez Lopez of Jaen University and their research teams.

At Madrid there are several groups interested in Ethnobotany and uses of plants wild and cultivated from different approaches. The Pharmacy Faculty of the Complutense University (Prof. Villar and Carretero) devoted some attention to chemicals from Spanish endemic species and their biological activities. Professor Velasco Negueruela directed several theses involving ethnobotanical and phytochemical research concerning Central Spain and carried out at the Plant Biology Department of the Biology Faculty of this University. Prof. Margarita Costa Tenorio, at the same department, directed a Ph.D. thesis (by S. Mesa) concerning General Ethnobotany of Sierra Magina (Jaen, Andalusia). Dr. Ramon Morales (Madrid Royal Botanic Gardens) took care of the direction of the much complex Thesis of Dr. Emilio Blanco involving comparative ethnobotanical research at Galicia and Extremadura.

It is noteworthy the splendid monograph by Dr. Luis Mulet Pascual concerning medicinal plants of Castello and their traditional uses in this province, this publication is based in the Ph.D Thesis of the author, made under the direction of Profs. M. Costa and J. B. Peris, Pharmacy Faculty, Valencia University. Also a considerable research has been developed in Catalonia by Prof. Joan Valles and co-workers, at the Pharmacy Faculty (Barcelona University). This resulted in several Thesis (Angels Cardona, Joan Muntane, etc.) and regional monographs. The Pyrenean Research Centre at Jaca

(Huesca) have published a much comprehensive monograph concerning medicinal plants of 'Alto Aragon', this is now in his second edition. At Jaca most of the botanists now working there have inherited the ethnobotanical concern and enthusiasm of Dr. Pedro Montserrat, former head of this group. In the present time Dr. Luis Villar is an active organizer of the group, involving research and also ethnobotanical training in summer courses, with co-workers such as Jose Maria Palacin.

Many other researchers have shown their interest in this field: Prof. J. Izco and Dr. Pablo Ramil (Santiago University), Prof. Felix Llamas (Leon University), Prof. J. Lastra Mendez (Oviedo University), Prof. Gonzalo Mateo (Valencia University), Prof. Benito Crespo (Alicante University), etc.

Although there is no direct relationship with the MEDUSA network there are also in Spain several researchers involved in the field of Palaeoethnobotany both in Universities and the Research Council Departments.

Last but not least, in Murcia (Plant Biology Department, Murcia University) we have developed a research work involving General Ethnobotany and special Ethnopharmacology. The whole of the region has been covered by the field research, carried out since 1981. We have also studied neighbouring regions such as Castilla La Mancha or South of Valencia. Three books have been published so far by Prof. Diego Rivera and Dra. Concepcion Obon containing information on the traditional uses of plants in Murcia. A monograph on the Ethnobotany of Sierras de Segura and Alcaraz, is actually in press, by the aforesaid authors and Alonso Verde; and two volumes set describing the traditional nut and fruit cultivars of the Segura Basin (SE of Spain). On-going at our research group are the theses of A. Verde, F. Mendez and C. Sanchez-Roca in the fields of Ethnobotany and Ethnopharmacology. Foreign students such as Anja Muller, from Bonn University, developed Ethnopharmacological research projects in our laboratory. Cooperation with the Phytochemistry Laboratory, Dr. F. Tomas Barbera

and co-workers, (CEBAS-CSIC, Murcia) has been very profitable to identify the compounds which could be responsible for the ethnopharmacological use.

From 1992 several meetings and workshops have been organized in Granada, Cordoba and Madrid and a newsletter of the Spanish Group of Ethnobotany was issued by the colleagues of Granada University. Since 1994 much of the aforesaid research groups are involved in a major common task: the Spanish Ethnoflora. Work is now in progress but the attempts for obtaining an economic support from the Spanish Academic authorities failed in two consecutive opportunities. The first publication of this project, in the form of a check-list, is expected for next Autumn, to be presented at the Ethnobotanical Congress in Merida (Mexico).

We had the opportunity of presenting the MEDUSA network to a reduced group of four colleagues in a recent workshop held in Madrid in January 1997.

Proposal to set up a centre for on-farm conservation of plant genetic resources on the island of Linosa (Italy)

K. Hammer, IPK, Genbank, Correnstrasse 3, 06446 Gatersleben, Germany

On-farm conservation is a special case of in situ conservation. Traditional parts of agriculture and horticulture may be preserved by continuing to produce crops in a traditional way. Contrary to the static methods of ex situ conservation in gene banks, this will provide for a continuing evolution of the crops. Only a few examples of on-farm conservation exist so far,

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mainly because of the problems that arise from the need to organize at the same time crop production and conservation but also due to the lack of suitable situations since genetic erosion has been so widespread in crop species.

The island of Linosa, south of Sicily, has still preserved traditional forms of agriculture. In comparison with the catalogue made for the whole of south Italy and Sicily by Hammer et al. (1992), more than ten percent of the crop plants were found at the species level. Considering the small size of the island, (5.3 km²) this has to be considered an exceptional situation. A checklist contained about 100 crop species. The infraspecific variation of this material is still under investigation.

Completely new ways have to be developed so as to set up a centre for on-farm conservation on the island (cf. Hammer et al. 1997). The unique wild floras should also be included in a new programme. An integrated approach to nature conservation and on-farm conservation could lead to a new model. One of the problems will be maintaining crop plants together with their wild relatives. Introgressive hybridization will be the result of such situations and this could endanger the genetic integrity of the populations of the wild species. On the other hand, introgression constitutes an important evolutionary factor for the development of crop plants. Thus both of these aspects will have to be taken into account in planning the integrated model. It would be of great interest to learn of similar experiences in other parts of the Mediterranean or about promising situations for on-farm conservation.

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The Mediterranean Islands Plant Specialist Group

Bertrand de Montmollin, biologist, Serre 5, CH-2000 Neuchâtel, Switzerland.

The current situation in the Mediterranean islands

Unknown to many, the Mediterranean region contains almost 10,000 islands and islets, making it one of the largest island groups in the world.

These islands house a wealth of species, many endemic, making the region an important centre of biodiversity. In addition, the history of the Mediterranean basin, its flexibility in reacting to a myriad of changes, and its role as a natural laboratory to study speciation, are other reasons why these islands are of such great interest.

Human activities have caused constant pressure on the Mediterranean for thousands of years, although today are an integral part of any Mediterranean ecosystem. However during the last few decades, major socio-economic changes have rapidly increased the negative effects of human impact in the Mediterranean, particularly along the coasts. Islands are especially vulnerable to this impact, as their small size amplifies such disruptions.

The lack of data on species distribution means that it is difficult to make a completely objective assessment of the current situation, particularly for the smaller islands. More information is needed about the habitats as well as the ecology and biology of the species concerned, in order to organize conservation programmes for species and their habitats.

In addition, legal protective measures are in general scarce, and poorly implemented. Protected areas are insufficient in number, and the management of existing protected areas needs sometimes to be improved.

It is therefore urgent to set up a comprehensive programme to protect the flora (as well as associated fauna), habitats, and landscapes of the

Mediterranean Islands, within the framework of a global strategy for environmental protection, sustainable development, and resource valorisation for local populations.

The Action Plan of the Mediterranean Islands Plant Specialist Group

The Mediterranean Islands Plant Specialist Group (MIPSG) was created at the beginning of 1995. Its 25 members represent almost every country possessing islands in the Mediterranean basin.

The MIPSG has defined a strategy to be used as a framework for conservation action. This strategy is specifically geared towards harmonising the activities of the MIPSG with other conservation work occurring in the area, as well as integrating them with existing Mediterranean networks.

The main principles of the strategy are:

- to assess the conservation status of the flora and vegetation on all the Mediterranean Islands;
- to improve and integrate current knowledge of the flora, habitats, threats and protected areas, with the authorities concerned with their conservation;
- to identify conservation priorities, and develop specific action plans;
- to define, promote, support and implement action plans for the conservation of species, habitats, specific sites, or entire islands;
- to propose tools for flora and vegetation conservation within an island context;
- to establish a biodiversity network for monitoring and implementation;
- to highlight the value of these island ecosystems within a framework of development activities;
- to improve, synthesise and circulate knowledge and information;
- to enhance the awareness of decision makers as well as the public.

These principles will be expanded in the "Conservation of Mediterranean Islands Plants - 1. Strategy for Action" published in October 1996. They will

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serve as the framework for the conservation action programme of the MIPS Gin the coming years.

Implementation of the action programme

Implementation of the Mediterranean Islands Plant Action Plan is scheduled to cover a four-year period (1997-2000) and will be structured as follows:

- regional correspondents will be selected among the MIPS G members for each island or archipelago. They will be responsible for co-ordinating ongoing work, monitoring the biodiversity under their remit, and sharing the information with the rest of the network;
- a management team co-ordinated by an executive secretary will monitor each region, provide technical and scientific support where needed, and mobilise funds to enable this work to be undertaken;
- local players will implement conservation programmes with the help and guidance of the management team and the regional correspondents, and where needed, specialised scientific experts.

This Action Plan will fit within the framework of IUCN's developing activities in the Mediterranean region (Mediterranean Programme).

[See book reviews Ed]

Plantes spontanées de la flore de Tunisie: Conservation et utilisation

Wild plants of Tunisia: their conservation and use

R. Chemli, Faculté de Pharmacie de Monastir,

M.A. Nabli, Faculté des Sciences de Tunis, Tunisie

La flore de la Tunisie

La Tunisie d'une superficie de 164,148 km² avec des montagnes peu élevées et une mosaïque d'écosystèmes disposés d'une flore relativement pauvre en espèces endémiques. La diversité spécifique est cependant assez riche. La flore vasculaire, outre les espèces introduites, cultives et spontanées, comporte près de 2150 taxons subdivisés en 115 familles et 742 genres.

307 espèces sont rares, et 99 sont très rares. Parmi ces 406 plantes 335 sont des espèces distinctes et qui constituent environ 15% de l'ensemble de la flore du pays. Sur les 81 espèces endémiques de l'Afrique du Nord et du Nord du Sahara, 34 espèces sont rencontrées en Tunisie.

Les plantes nécessitant une protection prioritaire sont: *Calligonum azev,* *Cupressus sempervirens,* *Juglans regia,* *Phyllitishemionitis,* *Prunus,* *Cyclamen persicum,* *Euphorbia dendroides avium,* *Pyrus syriaca* et *Quercus faginea*

Les pressions anthropiques associées à la sévérité du climat, essentiellement en milieux fragiles (zones semi-arides et arides) ont entraîné une dégradation des écosystèmes accompagnée d'une diminution de leur diversité floristique de nombreuses plantes apparentées ou non à des formes cultivées ont disparu ou menacées de disparition.

Les forêts (essence cortège floristique), les pelouses et les steppes qui constituent l'essentiel de la végétation

en Tunisie, montrent des signes de régression variables. Des espèces, de plus haut intérêt (pastoral, écologique, médicinale, alimentaire...) figurent parmi les plus menacées.

La sauvegarde du patrimoine phylogénétique ne peut être envisagée, en toute priorité qu'à travers une exploitation raisonnée des ressources du milieu qui passe par la protection et la restauration des sols ce qui favoriserait une remontée biologique.

La création de sept parcs nationaux, et quatorze réserves naturelles, zones pilotes et rayonnements sur les régions concernées, ont contribué à la conservation des écosystèmes, la prolifération d'espèces menacées et l'émergence de taxons considérés comme disparus. Ces approches privilégient la sauvegarde in situ d'écosystèmes, de groupements végétaux, d'espèces et de populations. Toutes fois, elles ne conservent pas obligatoirement la diversité génétique des espèces; la création de réserves naturelles et le choix des espèces à protéger doivent être guidés à l'appui d'une analyse de la diversité génétique. La priorité accordée à telle ou telle espèce locale, doit tenir compte des niveaux de variabilité, de la biologie florale et des objectifs de son utilisation à court et à long terme.

La création de réserves génétiques spécialement conçues pour des espèces sauvages apparentées aux formes cultivées doit être envisagée.

La promulgation en 1988, de cadres législatifs et constitutionnels pour gérer la végétation naturelle (forêts steppes parcours...) ont permis de limiter la dégradation de la végétation naturelle.

Cette préoccupation du sauvegarde in situ s'est concrétisée par la création d'un centre des ressources Phytogénétiques.

Les principales plantes spontanées, essentiellement celles menacées d'érosion génétique, présentes selon leur intérêt

(alimentaire, pastoral, médicinale, ornemental, écologique...) seront évoqués et leurs moyens de conservation discutés.

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Etat de recherche bibliographique dans les pays du Maghreb

Bibliographic research in the countries of the Maghreb

M.Hmamouchi, Faculté de Médecine et de Pharmacie, Rabat, Maroc, Unité de Recherche: Plantes Médicinales et Aromatiques, B.P.6203 Rabat Instituts, Maroc.

La présente étude bibliographique vise à établir l'état de travaux sur les plantes au Maghreb. Pour la clarté de l'exposé, elle procédera en premier lieu de façon analytique et historique selon les travaux effectués. Elle commencera par un rappel des travaux qui traitent des premières données relatives aux plantes, vultures impacts sur les utilisations actuelles. Dans un deuxième temps, elle présentera les travaux récents relatifs à la question. Cette bibliographie ne vise pas l'exhaustivité, mais signale les travaux spécifiques, qui sont constitués de rapports originaux sur la question.

Il est bon de rappeler qu'on estime à environ 20000 le nombre d'espèces de plantes utilisées dans le monde à des fins thérapeutiques, alimentaires, cosmétiques, chimiques, pharmaceutiques et agro-alimentaires.

Les résultats de enquêtes ethnobotaniques effectuées dans les différents pays du Maghreb montrent que plus de 80% de la population a recours aux plantes pour se faire soigner et plus de 30 espèces sont utilisées en alimentation. C'est pour mieux comprendre le bien fondé de l'héritage des pharmacopées magrebines que nous avons fait une étude bibliographique de travaux qui ont été effectués au Maroc et au Maghreb.

En effet, les Marocains en particulier et les arabes en générale, ont utilisés depuis les temps les plus anciens les plantes comme sources d'alimentation,

de médicaments, d'alimentation et d'embellissement. L'étude de la pratique de la médecine traditionnelle Maghrébine au cours de l'histoire arabe-islamique, montre que cette médecine traditionnelle a pu se maintenir et s'enrichir jusqu'à nos jours grâce à la situation géographique, aux traditions socio-économiques et aux particularités géographiques de chaque pays.

Nous nous sommes intéressés à l'étude des plus importants travaux relatifs aux plantes utilisées à des fins thérapeutiques, alimentaires, cosmétiques, chimiques, pharmaceutiques et agro-industrielles. Au Maroc on n'a noté plus de 4.200 espèces existant.

Ce travail s'inscrit dans le cadre de l'étude et la valorisation des ressources naturelles marocaines. Il n'a pas la prétention d'aborder d'une façon exhaustive toutes les facettes de ces ressources, combien abondantes dans nos pays africains en générale et au Maroc en particulier. Il traite principalement des Plantes médicinales et Aromatiques. Il souligne l'importance qu'occupent les plantes médicinales et aromatiques au Maroc. La stratégie adoptée dans ce travail, vise l'intégration des P.M.A. dans le système de santé et dans l'économie marocaine. En particulier leur conservation et leur valorisation au niveau thérapeutique, alimentaire, cosmétique et chimique.

Notre objectif qui est ce pendant ambitieux, vise à :

- Elaborer un recueil sur les données des plantes utilisées au Maroc;
- Inventorier les plantes utilisées en médecine traditionnelle marocaine;
- Préciser les grands traits des caractéristiques botaniques, de la répartition botanique et des usages à travers les différentes régions climatiques et socio-économiques marocaines;
- Exploiter les acquis de travaux de recherche réalisés en associant une méthodologie rigoureuse et originale à une orientation de recherches vers des besoins réels;
- Permettre aux différents spécialistes de travailler sur des données déjà

regroupées;

- Proposer des recommandations pour une utilisation adéquate en harmonie avec la biodiversité et la protection de l'environnement;
- Proposer une démarche pour la conservation, l'exploitation rationnelle de ces ressources naturelles.

Une étude bibliographique des sources d'informations disponibles sur les utilisations des Plantes médicinales et Aromatiques dans le monde arabo-islamiques, au Maghreb et au Maroc, nous livrent un savoir faire riche. Actuellement, on constate qu'il existe plusieurs travaux de recherches effectués par des équipes pluridisciplinaires, agronomes, chimistes, biologistes, pharmacologistes. Certaines informations bibliographiques sont rapportées d'une façon très succinctes. Pour plus d'information, les principaux ouvrages de référence sont consignés dans la dernière partie.

Origines des pharmacopées

Les différentes pharmacopées ont pris naissance et sont enrichies pendant les grandes conquêtes bien que les habitants possédaient également leurs thérapeutiques. Aussi un grand nombre d'ouvrages grecs, en l'occurrence les manuscrits d'Hippocrate, de Galien et de Dioscorides, ont été traduits par les Arabes qui n'ont ajouté leurs propres observations, de nouvelles recettes et de nouveaux médicaments. En médecine indienne ancienne, les plantes médicinales faisaient l'objet d'une culture réglementée organisée d'après les ordonnances du roi bouddhique Acoka (III^e siècle av. J.-C.).

Analyse de travaux réalisés après l'arrivée de l'Islam

La médecine égyptienne ancienne.

Ces sont les "papyrus" traitant de la médecine qui nous font connaître les matériaux médicaux et l'expérience des anciens égyptiens. Il devait probablement exister quelques 400 matières premières, dans la pharmacopée de l'Égypte ancienne, dont les matières animales, minérales

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etsurtoutvegetales.

Toutefois, c'est dans l'art de la momification qui apparait la superiorite des anciens Egyptiens, en tant que chimistes. Pour cela, ils ont utilise des sels tels que le chlorure de sodium, des huiles et des parfums.

Lamedecinebabylonienne. Elle nous est connue grace aux tablettes portant des listes de drogues, soigneusement etablies, en écriture cuneiforme. Un roi de Babylone : Mardoukappalidine II (772-710 av. J-C) fit creer un jardin dans le quele taient cultivees 64 especes de plantes medicinales. A la difference des recettes de l'Egypte ancienne, les formules babyloniennes n'indiquent ni poids ni mesures. Il semble qu'une sorte d'entente tacite regnait parmi les medecins quant aux doses a employer.

Lamedecineindienneancienne. Le but principal de la medecine de l'Inde ancienne, etait de prolonger la vie humaine. Les remedes etaient essentiellement d'origine vegetale et les plantes medicinales faisaient l'objet d'une culture reglementee organisee diaprès les ordonnances du royaume bouddhique Aeoaka (IIIemesiecle av. J-C)

Lamedecinechinoiseancienne. Le premier essai d'enregistrement des methodes therapeutiques et des types de medicaments, etait en Chine avant J-C d'a peu pres 3000 ans, dans une 'pharmacopee' formee de 52 tomes. Le traite de pharmacologie 'Pen ts' Kang mou' contient 8160 formules preparees a base de 1871 substances, essentiellement vegetales.

Lamedecinegreco-Romaine. Les medecins antiques preparaient eux-memes leurs remedes a partir des materiaux que leur fournissaient les herboristes et les marchandes. Parmi les plus celebres medecins, on cite : Hippocrate (460-355 av. J-C) 'Pere de la medecine'; Theophraste (387-317 av. J-C) 'Pere des plantes'; Galien (130-201) 'Pere de la pharmacie'.

AuMoyenAge. Ce fut le decret de Charlemagne (768-814), le celebre 'Capitulaire de Villis' qui ordonnait officiellement aux couvents et aux grands exploitants de la culture de certains legumes et simples, de certains arbres, fleurs, qui contribuaient

notamment a etendre la culture des plantes medicinales. Les medecins et herboristes a cette epoque etaient nombreux. Pour ne citer que les plus celebres : Hildegarde de Bingen (1098-1179); Constantin, d'origine carthaginoise, futur remarquable traducteur des ouvrages arabes; Guy de Chauliac, futur grand chirurgien; Albert le Grand, botaniste et medecin.

LamedecineArabo-Musulmane. Incomparablement plus riche que la science physiologique grecque dont elle est en partie issue, la medecine arabe, qui acheva pratiquement de constituer aux environs du Xeme siecle, conserve a ce jour un patrimoine de la sagesse antique d'une tres forte empreinte;

LamedecineduProphete. Il serait illusoire de parler de la medecine traditionnelle chez les Arabes, sans parler de celle du Prophete. En effet, celle-ci comportait divers prototypes de traitement d'un certain nombre de maladies. A ce propos, l'Historien Ibn Khaldoun parle de la medecine du Prophete et ajoute : 'Le Prophete a eu pour mission de nous faire connaitre les prescriptions de la loi divine et non de nous apprendre la medecine'.

En effet les sources des prescriptions medicales du Prophete sont de deux sortes : terrestre et divine. La premiere source est celle resultant de son initiation a l'art medical a la pure source de Harith Ibn Kaladah; d'autres connaissances medicales lui virent de observations faites tant dans ses voyages qu'au milieu de ses concitoyens. A ce propos Harith, il y avait des Arabes qui pratiquaient la medecine populaire, caute risaient, ventoussaient, saignaient, pansaient les blessures etc. La deuxieme source des prescriptions medicales du Prophete lui est due par la revelation divine, celle-ci interesse entre autres la the rapieutique par l'eau de truffe dans les maladies ophthalmiques dont les resultats furent apprecies par Youhanna Ibn Massaoui, medecin d'El-Moutaouakkel.

Ainsi le Prophete recommandait une alimentation diversifiee, tout en insistant sur la consommation prioritaire de legumes et de fruits frais

etsurtout sur celui du lait, des dattes et du miel dont les multiples vertus sont aujourd'hui amplement demontrees. Plusieurs plantes ont ete signalees par le Prophete. Ainsi, les plantes recommandees par notre Prophete dans 'At'tib Anabaoui' de Ibn Al Kayim Al Jousias ont un nombre de trentesep, dont un grand nombre est destinee a la consommation, par contre certaines de ces plantes sont reservees a l'usage externe.

On constate que les plantes citees par le Prophete presentent des indications tres variees, allant de simples fortifiants aux anticancereux parfois. Paradoxalement a grande vertu que possedent ces plantes, le cote toxicite n'est egalement signale, pour certaines plantes, par le Prophete.

Certaines proprietes physiologiques ou therapeutiques signalees dans la medecine du Prophete, ont ete demontrees scientifiquement, en l'occurrence, les proprietes astringentes et antidiarreeques des grenadines, l'effet hypoglycemiant de la nigelle, l'effet antidiarreeque du riz, ou encore les proprietes antiseptiques (cavite bucco-dentaire) de l'Arakoual salvadore.

PharmacopeeArabo-Islamique

Origine des pharmacopees Arabe et Marocaine. C'est qu'a partir du 92 del'Hegire (711 J.C) qu'ont ete posees les premieres pierres d'un monumental edifice scientifique et culturel. Cette date represente pour les musulmans la conquete du monde Europeen qui n'a malheureusement pas pu etendre au delà de l'Andalousie. Pour ce qui est du Maroc, il a subi l'invasion Arabe au VIIIemesiecle, et il semble que la pharmacopee Marocaine a pris naissance pendant cette periode bien que les habitants possedaient egalement leurs therapeutiques. Aussi un grand nombre d'ouvrages grecs, en l'occurrence les manuscrits d'Hippocrate, de Gallien & de Dioscorides, a ete traduit par les Arabes qui ont ajoute leurs propres observations, de nouvelles recettes, et de nouveaux medicaments.

Les principaux savants des anciens medecins Arabes. Nous rappellerons brievement dans ce chapitre quelques noms des grands medecins Arabes et musulmans, en l'occurrence Ibn Rochd,

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Ibnou Nafis et Ibn Al Baytar. Ibn Rochdestne d'un pere nomme le fils parle historiens; il etait un des grands jurisconsultes malekites, et il remplissait les fonctions de Cadi de Cordoue

Mais comme Ibn Rochd manifestait toujours un interet particulier a la medecine, son pere l'orienta vers les plus celebres medecins des temps, dont nous citons Abou Jaafar Haroun At-Tarjali son maitre principal et un des noms brillants de Seville. Sans oublier la frequentation de la famille Ibn Zohr. En effet une grande amitie et collaboration unissaient Ibn Rochd et Abou Marouan Ibn Zohr le classique Avenzoar. L'oeuvre magistrale d'Ibn Rochd est le 'Koulliyat' plus theorique que pratique, ce traite recapitule les connaissances medicales avec un esprit analytique et critique..

Ibnou Nafis est un autre nom aussi brillant que le precedent qui fait de Ibnou Nafis un medecin, un philosophe et un divers scientifique. Ne en 687 de l'Hegire, il etait l'auteur de plusieurs livres qui n'ont malheureusement pas pu etre reproduits en plusieurs exemplaires, vu l'immensite de leur volume.

Il n'en demeure pas moins qu'un nombre assez important de ses livres a ete conserve jusqu'a nos jours, parmi lesquelles on cite: 'A. Cheni Fitib', une veritable encyclopedie medicale comportant l'ensemble des connaissances et decouvertes medicales qui etaient mises a point a son epoque; 'Charh Al Kanoun' qui a ete partiellement traduit en latin par Andrea Alpago; 'Charh Foussoul Hippocrate'. En effet Ibnou Nafis etait un grand admirateur d'Hippocrate et il etait encore plus fascine par cet ouvrage ce qui l'a pousse a l'expliquer et a le traduire. En physiologie aussi, Ibnou Nafis etait le fondateur de plusieurs etudes: 'Chiasma optiques', 'Les trois dimensions' et 'Strabisme'.

Ibn Al Baytar. Avant de parler du plus grand botaniste et medecin que la medecine arabe ait produit: Ibn Al Baytar. Son nom vient chaque fois qu'on traite de botanique et de matiere medicale chez les Arabes. C'est le plus grand botaniste d'Orient et d'Occident. Ibn Al Baytar avec une oeuvre entre 593 et 646 de l'Hegire (1179-1249 JC), il etait

connu dans le monde musulman par 'Abou Annaba Al Arabi'. Il nous a laisse le plus riche repertoire de l'histoire naturelle medicale chez les Arabes. Plus de 1400 medicaments differents sont classes dans son ouvrage, par ordre alphabetique parmi lesquels 300 n'avaient pas encore ete consideres dans un ouvrage de pharmacologie et 200 sont de nature vegetale. Son ouvrage le plus important est le 'Jamie al-Moufradat' ou 'collection des simples' ou 'traite par ordre alphabetique des aliments et des medicaments de trois regnes.

Parti de Malaga et ayant parcouru toute l'Espagne, le Maroc, l'Afrique du Nord, l'Egypte, la Syrie et l'Asie mineure. Sur 2330 paragraphes, il y en a dutiers pour les synonymes. En effet, non seulement il relate les plantes qu'il a recitees lors de ses voyages, mais il nous a conserve beaucoup de noms berberes qui furent introduits par lui dans la nomenclature et figurent dans les dictionnaires arabes.

La medecine traditionnelle au Maghreb. Plusieurs facteurs contribuerent au developpement. Ainsi, l'enseignement academique des universites islamiques (Qaeawiyyine, Zaytouna), des "Medersas" de Marrakech, Fes, Tetouan et Sale, les 'Zaouia', de Ouazzane a Smara, l'experience des grands voyageurs (Ibn Batouta, El Bekri, Cherif El Idrissi), l'influence de la medecine des voisins: peuples noirs des rives du Senegal et du Niger, population iberique, et la diversite dans la provenance geographique des drogues utilisees, denotent bien la grande plasticite de la pensee medicale maghebine.

Parmi les savants par excellence de la therapeutique maghebine on cite: Ibn Zohr, Mohamed As-Saquri, Ibn Tofail, Abul Kassim, Az-Zahraoui, Ibn Baklarich, Ibn Bayter, Abderrahman Elfassi, Abdelwahed Ibn Ahmed Addarraq.

Il convient aussi de citer parmi les ouvrages maghebins fondamentaux qui nous sont restes: 'Tuhfat Al-ahbab', oeuvre anonyme ecrite vraisemblablement par un therapeute de Marrakech du sud marocain au XVIIe me ou au XVIIIe me siecle; 'Hadiqat al-azhar', ecrite par Alwazir Al Ghassani

qui vecut a la fin du XVIe me siecle et fut le medecin du Sultan Ahmed Almansour. Al Urjuzah d'Abdel Qader Ibn Chaqrun, oeuvre connue sous le nom de Urjuzah ach-chaqruniya, ecrite au XVIIIe me siecle. Cette oeuvre est principalement un traite de dietetique et d'hygiene, mais elle contient egalement une masse importante de renseignements d'ordre therapeutique. Diya An-Nibras, oeuvre d'Abdeslam Ben Mohamed Al Alami, produite au XIXe me siecle et lithographie a Fes a la fin du siecle dernier. Kachfar-Rumuz d'Abderezak Al Jaziri (XVIIIe me siecle), auteur de nationalite algerienne, mais qui a tres largement puise aux sources et aux traditions medicales marocaines.

Plantes medicinales au Maroc. Au Maroc, plusieurs chercheurs sont interesses a l'etude des plantes medicinales et aromatiques marocaines. C'est ainsi que plusieurs theses, articles ont ete prepares de memoire qu'un certain nombre de memoires et de livres. Vous trouverez en annexe la liste de plus importantes references. Il nous semble tres interessant de rappeler les principaux travaux realises dans ce domaine.

L'ouvrage en cours d'edition intitule 'Pharmacopee traditionnelle Marocaine: Plantes Medicinales et Aromatiques' actualise les principales donnees relatives aux plantes medicinales marocaines.

Cet ouvrage est le resultat de travaux de recherche effectues dans le cadre de 4 projets de recherche. Il est le fruit de la synthese d'un travail effectue depuis 8 ans par une vingtaine de chercheurs.

Ce travail fait le point des connaissances actuelles sur la medecine traditionnelle Marocaine en general et sur les plantes medicinales et aromatiques Marocaines en particulier. Les plantes d'une vingtaine de provinces ont ete repertoriees, 340 plantes ont ete recensees. Ils'agit du recensement des plantes medicinales utilisees traditionnellement en medecine populaire, leur identification, leur utilisation, leur valuation chimique, pharmacologique, toxicologique et leur identification botanique.

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Dans une première partie, nous avons précisé les monographies pour chaque plante recensée avec la nomenclature (noms scientifiques, vernaculaires en Français, Arabes, Dialectale, Berberes) et les Familles végétales correspondantes, la description botanique, l'illustration, l'habitat, la répartition au Maroc, l'abondance, la partie utilisée, l'utilisation, les principales études chimiques, pharmacologiques et toxicologiques. Dans une deuxième partie, nous rapportons plus de 500 recettes, en insistant sur la description des maladies selon les prescripteurs, la ou les plantes utilisées, la partie utilisée, le mode de préparation et d'utilisation, les précautions d'emploi et les propriétés. Dans une troisième partie, nous rapporterons la liste des plantes toxiques, aromatiques et les principales utilisations des plantes marocaines (alimentaire, médicinale, aromatiques, et industriel). En annexe, nous rapporterons le glossaire français/arabe/berbere/latin, le glossaire arabe/français/berbere/latin. (voir le modèle ci-joint).

Parmi les autres travaux intéressants on peut citer:

En 1970, Mr Sandali A., étudia l'intoxication à l'Addad (*Atractylis gummifera*). Il signala que quelques données sur la clinique, la biologie et l'anatomie pathologique de ces 6 cas d'intoxications par cette plante. Il s'agit d'une plante très toxique.

En 1981, El Omar Z., traita la médecine populaire par les plantes médicinales dans le traitement des helminthiases, en vue de répertorier les plantes médicinales utilisées contre les vers intestinaux. Sur 24 plantes qu'il recensa, il releva 6 qui sont les plus utilisées dans ces villes.

En 1981, Mouhib M. étudia les plantes médicinales utilisées en médecine traditionnelle dans la province de Taza. Parmi les plantes toxiques responsables de la majorité des intoxications végétales de la région, il cita: le charbon de glu, la jusquiame blanche, le *Datura*, le laurier rose, la belladone, la rue sauvage, le *Daphne*, enfin l'*Ephedra*.

En 1983, Agoumi S. étudia les plantes médicinales au usage antihelminthique dans la région de

es. Ainsi, il releva l'utilisation de 11 plantes.

En 1984, Mr Dahou M., grâce à une enquête qu'il effectua à Settat, il étudia la médecine populaire de cette région.

En 1984, Mr Hamdani S.E., a fait une enquête à Bouja. En plus de 40 plantes et 15 produits minéraux dont il donna les nomenclatures et les utilisations traditionnelles de la région, il cita 16 produits animaux très utilisés.

En 1984, Jimenez C. étudia la médecine traditionnelle dans la région de Casablanca et Rabat.

En 1985, El Bouzidi H. étudia la médecine traditionnelle dans la province de Khemisset. Il précisa les indications traditionnelles d'une quarante de plantes médicinales, et d'une quinzaine de produits minéraux. Il cita ensuite 12 produits animaux utilisés dans la magie.

En 1985, Kaddouri M. effectua une enquête auprès de différents praticiens de la province d'Oujda. Il signala aussi des recettes de drogues pour une quarantaine de pathologies.

En 1985, Aziouz E. étudia la médecine traditionnelle à propos de 30 plantes, pour lesquelles il rapporta les monographies classées par famille botanique.

En 1985, Jennah L. étudia les hallucinogènes d'origine végétale et leurs incidences sur la santé publique et sur la vie sociale. Il rapporta pour les 11 substances hallucinogènes étudiées, la botanique, la pharmacologie, la toxicologie et la physiopathologie.

En 1986, Karimine F. étudia les intoxications végétales en pédiatrie à propos de 16 plantes, selon l'expérience du service de réanimation polyvalente pédiatrique (de 1980 à 1986) et du centre antipoison de Rabat (de 1972 à 1986). Selon ses résultats, le charbon de glu, suivi par le pavot, le *Datura* et le Ricin, sont les plantes les plus fréquemment responsables de ces intoxications.

En 1986, Berrada F. prépara une étude intitulée: 'IBN Rochdet la

médecine andalouse'.

En 1986, Lakloumi M. étudia 'La vie et la contribution d'Ibn Zohra à la médecine expérimentale arabe à travers son ouvrage "Le Tayssir". Il signala sommairement les différents manuscrits de ce livre.

En 1986, Touijer D.: A propos de 20 plantes utilisées en médecine traditionnelle.

En 1987, Nas Lafkih A. a fait une étude sur les végétaux toxiques en milieu marocain, à propos des données du centre antipoison de Rabat, sur une période de 6 ans (de 1980 à 1985). Le centre a enregistré 9583 cas d'intoxications sur lesquelles 175 cas concernent les végétaux qui représentent donc 1,8% de l'activité générale. Parmi ces plantes on trouve en premier le chardon de glu (56 cas), suivi essentiellement par le chanvre indien (12 cas), du *Datura* (9 cas) et du harmel (7 cas).

En 1987, Sekkat C. effectua une enquête auprès de diabétiques (100 D.I.D et 100 D.N.I.D) pour évaluer le traitement du diabète par les plantes médicinales.

En 1987, Aatik M. traita l'histoire de la médecine au Maroc. Il effectua une enquête à Essaouira auprès de certains praticiens de la région.

Parmi ces plantes, l'armoise blanche, l'absinthe, les semences de courge, sont les plus utilisées pour cette affection.

En 1989, Grifti D. a mené une étude expérimentale dans le but de relever l'effet hypoglycémiant de la coloquinte chez des sujets atteints de diabète (D.N.I.D). Ensuite, il cita une dizaine de plantes utilisées pour le diabète au Maroc. Enfin, il rapporta différentes hypothèses concernant le mécanisme d'action de la drogue dans cet effet hypoglycémiant.

En 1989, Alam S. rapporta dans son étude intitulée: 'Phytothérapie ancestrale, actuelle et d'avenir', une étude analytique de 22 plantes recommandées par le prophète

En 1989, Cherai M.E., rapporta une étude relative à la médecine arabe célèbre Ibnou Nafis.

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En 1989, Katif M. A. étudia la medication de la médecine traditionnelle, grâce à des visites aux souks, aux sanctuaires maraboutiques et aux sains de la région de Marrakech.

En 1990, El Majjidi A. étudia la médecine traditionnelle en traumatologie orthopédique dans la région de Marrakech.

En 1990, Taouil A. a effectué une étude sur les plantes médicinales de la province de NADOR. Il signale 26 plantes utilisées dans la province.

En 1990, Cherrad A. s'est intéressé aux pratiques médicales traditionnelles au Maroc en pédiatrie. Il signale les recettes traditionnelles relatives à une cinquantaine de maladies infantiles connues au Maroc.

En 1990, Bendali M. étudia les traitements des affections respiratoires par les plantes médicinales.

Il a effectué une enquête auprès du public et des herboristes de la région d'Oujda sur une échantillon de 80 personnes.

En 1991, El Baghdadi M. étudia les plantes médicinales qui ont une action sur le système cardiovasculaire. Elle rapporte les monographies détaillées de 25 plantes.

En 1991, El Fari S. a fait une étude intitulée: 'Le Cannabis sativa L.' (Kif). Cette étude a été consacrée à la pharmacologie du chanvre indien (pharmacocinétique, mécanisme d'action).

Sandali A. étudia en 1970, l'intoxication à l'Addad, à propos de 6 cas. Il signale le décès de deux cas, et la souffrance hépatique chez les autres cas.

El Basri A. traitait l'intoxication aigüe chez l'enfant à propos de 302 cas au service de pédiatrie au C.H.U. Averroès de Casablanca pour la période de Janvier 1976 à Décembre 1981.

Naamani M. étudia l'intoxication aigüe à Agadir (360 cas, centre hospitalier Hassan II), période de Janvier 81 à Décembre 84).

Karimine F. étudia en 1986, les intoxications végétales en pédiatrie à Rabat, à propos de 16 plantes toxiques. Parmi les plus fréquemment responsables de ces intoxications vient en première le chardon à glu (Addad) suivi par le pavot, le Datura et l'ericin.

Nas Lafkih A. a proposé de 9583 cas d'intoxications enregistrées au centre antipoison de Rabat, sur une période de 6 ans (80-85), signalant que 175 cas concernent les végétaux soit 1,8% de l'activité générale.

Ajhoun A. rapporte des monographies de certaines plantes à tropisme nerveux central: le chanvre indien, le pavot, le tabac et l'aconit tue-loup.

Alaoui I. étudia parmi les plantes hépatotoxiques utilisées en médecine traditionnelle, l'amanite phalloïde, le chardon à glu, la colombine, l'héliotrope d'Europe et l'ericin.

Amarouch N. traite les plantes utilisées en phytothérapie traditionnelle et qui ont un tropisme cardiaque, comme le laurier rose, la scille, l'adonis, l'hellebore foetide, le gui et le harmel.

Jana M.: Son étude sur les plantes actives sur le système nerveux autonome et utilisées en médecine traditionnelle concerne: les belladones, les jusquiames, les Datura, les mandragores et les Ephedra.

Loubaris M. N. illustre les cas de cinq plantes utilisées en phytothérapie respiratoire traditionnelle. Ces plantes sont: le coquelicot, la menthe pouliot, le thym, l'origan et l'Ephedra.

The Italian Society for Agricultural Genetics takes initiatives to promote genetic resources conservation

Domenico Pignone, CNR-Istituto del Germoplasma, Bari, Italy

During the last meeting of the Italian Society for Agricultural Genetics (SIGA) (Perugia, Italy, September 1996), a working group on 'Genetic resources and biodiversity' was established. A meeting of the working group took place in Rome on May 23, 1997. The aims of the meeting were:

- ☐ To promote coordination of the research activity in the field of genetic resources and biodiversity (GR&B)
- ☐ To contribute to orientating research activities toward aspects of particular interest
- ☐ To promote the awareness on safeguarding genetic stocks and local populations of crops at risk of extinction
- ☐ To promote the establishment of reference points for all concerned institutions

More than 70 scientists from all over Italy attended to the meeting, together with representatives of some producers' organisations. The meeting did not concentrate only on agricultural species but was open to contributions on animal and microbial biodiversity as related to agricultural systems. There were many short contributions mainly devoted to introducing the participants and their activities. Some speakers concentrated on the perspectives of financial support to GR&B actions within the framework of ongoing or future national programmes. The contribution of Prof. Porceddu (Università della Tuscia, Viterbo) was particularly interesting: he announced that Italy is going to implement the Convention of Rio, through the establishment of a finalised project on

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the assessment and conservation of Italian biodiversity.

During the general discussion which followed the communications, the following points of particular interest emerged:

- ☐ All participants agreed on the necessity of promoting a national coordination of these research actions in the fields of GR & B. It was also proposed to establish a questionnaire to be distributed to Italian research institutions in order to get up-to-date information on the genetic stocks and germplasm conserved there. Moreover it was proposed to establish a mailing list of interested researchers to promote the interaction between distant research groups and to spread more effectively information on matters of interest to the working group.
- ☐ A major question arose on whether we were properly conserving the germplasm we possess. It came out that there is a strong need of research in the field of evaluation the level of genetic erosion during the gene bank activities as well as on the genetics of population enhancement in the gene-banks.
- ☐ It was pointed out that, besides few examples, the majority of the stored germplasm is actually underexploited. The participants discussed at length the actions needed in order to promote the utilisation of germplasm presently in storage.
- ☐ Apart from the inherent differences, it was pointed out that animal germplasm seem to be more widely exploited than plant germplasm. A representative of a growers association pointed out that some animal products are highly dependent of the local breeds from which they are derived.
- ☐ In the field of local plant germplasm, some initiatives devoted to the promotion of local stocks through the obtainment of an 'declaration of origin' were raised and discussed. All these initiatives regarded specific products with a specific market destination.

At the end of the discussion, regarding future initiatives, it was agreed that the

most urgent action is to establish a mailing list of the working group operating via electronic mail, in order to speed up the contacts and promote interactions among groups. The Istituto del Germoplasma, Bari, took responsibility for this task as well as for creating a reference page in the World Wide Web to assist the working group activities. The address for the mailing list will probably be sigabiodiv@area.ba.cnr.it, while the Web page will be allocated within the space of the Germplasm Research Institute homepage (<http://www.ba.cnr.it/~germdp02/germo.html>).

For more information please contact:
DR. PIGNONE
CNR-Germplasm Research Institute
E-mail germdp02@area.ba.cnr.it
fax at +39.80.5587566.

For further interaction or information on the GR & B working group, please contact the coordinator:

PROF. PIERLUIGI S. PAGNOLETTI ZEULI
Dip. Biologia Difesa e Biotecnologie
Agro-Forestali
Universita' della Basilicata
Via N. Sauro 85
85100 Potenza, Italy
Phone +39.971.474258
Fax +39.971.471009
E-mail spagnoletti@unibas.it

Activities of the Department of Natural Products of the Mediterranean Agronomic Institute of Chania

*M. Skoula-Johnson, MAICh, PO
Box 85, 73100 Chania, Greece.*

The Department of Natural Products of the Mediterranean Agronomic Institute of Chania performs **training**, and conducts **research**, all aiming to the identification, sustainable use and conservation of plant resources of the Mediterranean region which are of

actual or potential importance to agriculture, various industries and human health, and consequently will improve the quality of life.

A. Training

1. Nine-month courses on Natural Products

Over the last few years, the introduction of new research and application tools has dramatically changed the field of natural products, in an effort to keep pace with growing consumer demand. Pharmaceutical research is isolating and characterizing a large number of novel compounds with medicinal value. In addition, the introduction of biotechnology is revolutionizing agriculture by enabling fast improvements in plant breeding and selection of useful genotypes, improvement of product quality and the production of new products with industrial uses.

The Department of Natural Products provides education in the field of applied biological sciences specialized in current advances in the production, use and legislation of plant natural products with special attention on aromatic and medicinal plants. The course covers aspects of:

- . Advanced topics in plant physiology, plant biochemistry and plant molecular biology
- . Plant genetics and breeding
- . Plant propagation including conventional & tissue culture
- . Plant and soil nutrition
- . Mediterranean plant diversity
- . Ecological and stress biochemistry
- . Secondary Metabolism
- . Chemistry of natural products: Essential oils and other terpenoids, alkaloids, flavonoids and other phenolics
- . Cultivation and processing of aromatic and medicinal plants
- . Natural products in food technology and other applications
- . Legislation on the use of natural products
- . Chemotaxonomy

Activity Reports

- Biotechnological applications in the production of natural products

This course leads to a DSPU while students may continue with a nine months research project that leads to an Msc.

2. Three-week course on Conservation and Sustainable Use of Plant Biodiversity

Following the coming into force of the Convention on Biological Diversity in December 1994, signatory countries throughout the world are engaged in attempts to put into practice the various articles of the treaty. This is being done in the context of a world that is being subjected to rapid and often drastic change, much of it human-induced. The course covers aspects on:

- the international background to the conservation and sustainable use of biodiversity, including legal instruments and international and regional organizations
- the development of the concept of biodiversity genetic, organismic and ecological
- how much diversity there is, where it is, how it may be assessed, measured and monitored
- the dynamics of biodiversity anthropogenic and climatic change
- the special role of humans in understanding and modifying biodiversity
- the importance of genetic resources, their assessment, accessibility, exchange and conservation
- the evaluation of biodiversity and human and social values
- the underlying causes of loss of biodiversity
- the conservation and management of biodiversity for sustainable use - at the bioregional, landscape and local levels
- Conservation techniques - in situ, ex situ, reintroductions, integrated approaches
- Gathering, managing and sharing information on biodiversity

B. Research

The research activities of the Department on Natural Products include aspects of domestication, cultivation, identification, variation and applications of secondary metabolites of wild aromatic and medicinal plants of the Mediterranean region, as well as aspects of biotope conservation for bioregional management that are accomplished in collaboration with other Institutions. The research projects that MAICH has been or is involved in are:

'Identification, preservation, adaptation and cultivation of selected aromatic and medicinal plants suitable of marginal lands of the Mediterranean region' EU, DG VI, CAMAR (Aug. 1991 - Jan. 1995). This programme studied the variation in yield and composition of essential oils of *Coridothymus capitatus*, *Origanum vulgare* ssp. *hirtum*, *Salvia fruticosa* and *Satureja thymbra* in relation to different environmental factors. Plant nutrition and reproductive physiology were also studied. The main task of the project was to identify and produce commercially important genotypes for cultivation in marginal lands. Furthermore, research was conducted on the traditional uses and therapeutic applications of native plants of Crete. Additionally, MAICH has created a Herbarium and is striving to collect samples of all native plants of Crete.

'Indigenous knowledge systems for sustainable agriculture in developing countries: towards an alternative approach to food shortage reduction in Kenya and Indonesia' EU, DG XII, STD-3 (Jan. 1993 - Jun. 1997). The programme studies, analyzes and documents Indigenous Agricultural Knowledge Systems in relation to food production in developing countries in a multidisciplinary and comparative way. It evaluates the potential contribution of such knowledge to the development of alternative agriculture for food shortage reduction and preservation of natural resources. Eventually a practical model of integration of indigenous knowledge systems into sustainable development strategies in developing countries.

'Towards a Model of Technical and Economic Optimization of Specialist Minor Crops: Aromatic and medicinal plants' EU, DG VI, AIR3. (Jan. 1995 -

Dec. 1996). This concerted action programme constitutes a technical and economic database on aromatic and medicinal plants and tries to develop a research methodology to support rapidly the development of production in Europe targeting the seller's market. The programme promotes the exchanges between the research teams, producers and industrial users in order to structure the branch. Finally the reflection to other alternative crops in order to define a development model for these species at a European level will be extended.

'Contribution to the genetic improvement of aromatic and medicinal plants: a comparative in selected species of the genus *Origanum*' PENE, General Secretariat of Research and Technology of the Greek Ministry of Development (June 1996 - May 1998). The main objective of this project is the characterization of selected clones of the species *Origanum vulgare* subsp. *hirtum*, *O. onites* and the hybrid *O. ? intercedens*. The characterization will be based on morphological, chemical and molecular features. The aim of this project is to produce homogeneous genetic material with desirable features (essential oily yield, essential oil composition, biomass production, and possibility of application certain collection techniques).

'*Origanum* spp. and *Salvia* spp.: Integrated breeding research to improve homogeneity and quality of multifunctional secondary plant products' EU, DG VI, FAIR3 (Feb. 1997 - May 2000). This programme aims to improve homogeneous quality for major and minor species and two sage species using a selection programme of selfings of chemotypes. There will be an effort to transfer seed production to Mediterranean regions. In addition, the degree of antibacterial and antifungal activity of the available genetic variability of the essential oils and antioxidant activity associated with the essential oils will be examined.

'Management and protection of the threatened biotopes of western Crete with the co-topes and priority species' (Jan. 1996 - Dec. 1997) EU, DG XI, LIFE' 95. The objective of the programme is the formulation and application of an integrated project for the restoration and conservation of biotopes, including

Activity Reports

ecotopes and species of priority for the European Union within Western Crete. The range of activities encompasses 5 areas which are threatened by their continuous degradation. The project proposes the following protection and conservation measures: (a) the development of management studies for the biotopes, and studies for the sustainable development of these areas (b) the execution of emergency activities for the restoration and conservation that will be recommended in the studies (c) the promotion of the legislation and administration for the protection and management of the environment (d) the creation of effective protection strategies (e) the human awareness and dissemination of the results. The materialization of this project is expected to interrupt the degradation process in the area and to encourage sustainable development which will ensure future conservation of the biotopes.

C. Training and research activities are supported by:

1. Herbarium-Botanical Garden

The Herbarium of the Mediterranean Agronomic Institute has been designed to include vouchers specimens of all plant taxa of the Cretan flora and it has the necessary infrastructure of the accurate identification of plant species of the Mediterranean region. The functions of the Herbarium cover:

Contribution to the Mediterranean flora.

Production of local floras and check-lists.

Services which include loans, providing facilities for visiting botanists, identifying specimens relevant to the region and dispatching determination lists, collecting material from the field to be used for various studies, such as, anatomy, cytology, ecology, conservation, plant breeding, pharmacology, biochemistry, ethnobotany.

Educational purposes

A Botanical Garden is currently being designed to hold living specimens of the Mediterranean Flora.

2. Laboratory

The laboratory offers support to research and academic work in the areas of phytochemistry, biochemistry, molecular biology, plant tissue culture, plant physiology, and wild fire control management.

The structure and activities of TBAM

K. Husnu Can Baser, Director, Anadolu University Medicinal and Aromatic Plant and Drug Research Centre (TBAM), 26470 Eskisehir, Turkey

Anadolu University Medicinal and Aromatic Plant and Drug Research Centre (TBAM) celebrated her 10th year in service on November 19, 1996.

TBAM was established in 1982 as a research centre to carry out pure and applied research into all aspects of research in medicinal and aromatic plants except for agriculture. However, TBAM also implements joint projects with agricultural and forestry institutions. TBAM has been strengthened over the years through funds mobilised by United Nations Development Programme (UNDP) and United Nations Industrial Development Organisation (UNIDO). The centre is equipped with modern instrumentation, pilot plants and up-to-date information and communication facilities, and manned with qualified personnel to conduct research and serve industrial clients.

TBAM has so far published 130 research papers in refereed international journals, 34 papers in Turkish journals and 65 papers in conference proceedings. 47 manuscripts are in press in scientific journals. TBAM scientists have communicated 184 papers in 57 symposia. TBAM Director, Prof. Baser, has so far edited 12 books and written 13 project reports.

TBAM has been organising an in-plant group training programme every year since 1988. The programme is titled 'Training on the Utilisation of

Medicinal and Aromatic Plants in Pharmaceutical and Related Industries (TRUMAP)'. It is supported jointly by the Government of Turkey and UNIDO. This unique 25-day course is attended each year by ten selected participants nominated by developing countries. In nine programmes, 91 participants from 37 countries have been trained.

The 10th TRUMAP will take place between September 8-30, 1997 in Eskisehir. UNDP Offices and UNIDO-Vienna, Austria can be contacted for further information. A limited number of participants from other countries may also be admitted upon payment of a fee. Further information on this can be obtained from TBAM.

The 28th International Symposium on Essential Oils (28th ISEO) will be held between September 1-3, 1997 in Eskisehir. Over 200 scientists are expected to attend this prestigious meeting. For further information, please contact TBAM.

The 3rd International Cosmetics Symposium (3rd ICOS) will be held on October 2-3, 1997 in Eskisehir. The 1st and 2nd symposia were held in 1993 and 1995 in Eskisehir. The topic of this year's symposium is 'Make-up Products'. Plenary lectures will be delivered by esteemed specialists from academia and the industry, and the other participants are invited to make poster presentations. TBAM should be contacted for further information.

Visit TBAM on

<http://www.anadolu.edu.tr/anadolu/tbam/index.html>

Address: Anadolu University Medicinal and Aromatic Plant and Drug Research Centre (TBAM), 26470 Eskisehir, Turkey.

Phone: (90-222) 3352952

Fax: (90-222) 3350127

Email: tbam@vm.baum.anadolu.edu.tr
orkhcbaser@vm.ba

Country News

Algeria

Le 2eme Colloque National sur les Plantes Medicinales. Avril 1997, Mostaganem (Algerie) a ete organise par la FOREM (Fondation nationale pour la promotion de la sante et le developpement de la Recherche Medicale). Contacter: Pr. M. KHIATI, Centre Culturel de Hussein Dey, Hussein Dey ALGER.

Egypt

A special unit, the 'Centre for the Study of Medicinal and Aromatic Plants' was established, affiliated to Cairo University. Professor Mohammed Younis Haggag, MEDUSA Focal Point Coordinator for Egypt, was selected to be the first director of this Centre. The main objectives of the Centre are:

- production of medicinal plants complying with the requirements of the pharmaceutical companies
- carrying out research to find the optimal conditions for cultivation of medicinal plants with the highest yields of active constituents

carrying out experiments for the acclimatization of important exotic medicinal plants, as well as those that are wild and native, with a view to providing a local source that can supply and satisfy the needs of both local consumption and export.

Italy

Recent meetings on biodiversity in Italy

Gaetano Laghetti, CNR-Istituto del Germoplasma, Bari, Italy

Due to the rapid technological progress in agricultural techniques, many eco-compatible productive systems, especially in southern Italy, were completely abandoned. This reduction had a strong consequence on local germplasm that was particularly adapted to those more traditional agricultural systems. The impact was especially strong in southern Italy since the area was, in the recent past, particularly rich in agrodiversity.

Local agroecotypes, adapted to

traditional agricultural systems, are of interest in the development of sustainable agriculture. In fact, low-input agriculture seems to provide an answer to the needs of reducing the impact of agro-activities on the environment and, at the same time, to the needs of conserving and promoting biodiversity.

To increase the scientific discussion on these themes, the 3rd National Congress 'Biodiversity-technologies and quality' was held on 16 and 17 June 1997, at the University of Reggio Calabria.

Further information on the meeting and abstracts of the presentations can be found at the URL "<http://www.unirc.it/imtaf>", or requested from:

Istituto di Microbiologia e Tecnologia Agraria Forestale, P.zza S. Francesco 4, 89061 Gallina (RC) Italy. Phone +39.965.682566; Fax +39.965.682710; Email IMTAF@CSIINS.UNIRC.IT

Following an initiative of the extension service of the Abruzzo region in 1995, it was proposed that minor cereals could be considered as commercial crops in a similar way to what had been done with several fruit or flower species. The promotion of these minor cereals implies an increased activity in safeguarding their genetic resources. This task is better achieved through obtaining the relevant trademark label-recognition, seed certification, and wider dissemination of information to both growers and users. To this end, several national and international research institutions, together with the extension services of the Abruzzo region and the Italian Farmers Confederation organised a meeting held in Francavilla al Mare (Chieti) on 28 June 1996. The meeting was entitled 'Minor Cereals-genetic, agronomy, nutritional aspects and strategies for their exploitation'.

Further information and proceedings requests should be addressed to: DR. ORIANA PORFIRI, CERMIS, Via Abbadi di Fiastra 3, 62029 Tolentino (MC), Italy, Phone and Fax +39.733.203437; Email ori@wnt.it or to: Dr. Stefano Padulosi, IPGRI-UMSP Project, Via delle Sette Chiese 142, 00145 Roma, Italy Email s.padulosi@cngnet.com

Morocco

A seminar on 'Less substances naturelles a service de l'industrie et de la medecine' was held on 25-26 April 1997, at Meknes (Morocco). Contacter: Universite Moulay Ismail, Faculte des Sciences, B.P. 4010 Beni M'hamed, Morocco.

Portugal

The Laboratory of Pharmacognosy of Pharmacy Faculty of University of Coimbra, under the direction of Prof. Doutor A. Proenca

Biology of Sciences Faculty of Lisbon and the Botanic Department of Sciences Faculty of Coimbra. Financial support from Junta Nacional de Investigacao Cientifica (Governmental Department for Scientific Development).

'Studies on the essential oil of Juniperus spp from Portugal'. This project involves the collaboration of the Department of Vegetal

'Composition study of essential oils from Tras-os-Montes aromatic plants, concerning agricultural and industrial profit in future'.

The Direcção Regional de Agricultura (Regional Direction of Agriculture) from Tras-os-Montes is partener in this project. This work is supported financially by the Ministerio da Agricultura (Agriculture Department).

These projects involve the study of the chemical composition of the essential oils of these plants is carried out by means of several analytical methods (GLC, GLC/MS, 13C-NMR), and in order to study the infraspecific variability in each taxon, chemical analyses are lasting three weeks the course brought together specialists in desert and arid zones from many countries.

'Les acquis de la recherche scientifique et les perspectives de developpement durable des regions arides' c'est le titre d'un seminaire international tenu le 5-6 et 7 Decembre 1996 a Djerba (Tunisie). Ce seminaire a regroupe plus de 100 chercheurs du Maghreb, d'Afrique, d'Europe et d'Asie. Une attention particuliere a ete accordee a:

Country News

La maîtrise de la gestion des ressources naturelles dans les zones arides.

L'évaluation des programmes en cours de réalisation

made on representative samples from several populations and on individual samples in each population.

The 'Centro de Estudios Farmaceuticos', (Pharmaceutical Studies Center) of Pharmacy Faculty is giving support for two other projects: one in Medicinal plants (*Thymus* sp. and *Rosmarinus officinalis*) and its anti-oxidant activity and the other about seed viability properties in *Valeriana officinalis* and *Passiflora edulis*

Tunisie

Capparis spinosa L.

The caper, *Capparis spinosa* L., was the subject of a seminar held on 6 April by the Ministry of Agriculture in Tunisia. The topics covered included biology and distribution, geography and taxonomy, syntaxonomy and economic importance and biotechnology and multiplication. Of the 250 species in the genus, only six, with five varieties, are found in the countries of the Mediterranean basin. da Cunha is developing two scientific projects, both in aromatic plants and essential oils:

International courses

A course on the 'La gestion des ressources naturelles et développement des zones arides' (Management of natural resources and development in arid zones) was held at Medenine (Tunisia), 11-30 November 1996.

This training course was organized by CIHEAM-Montpellier, France and the Institut des Régions Arides de Medenine and was supported by the European Union (DG1) and the French Ministère des Affaires Étrangères.

La définition des priorités pour la lutte à long terme contre la désertification et le développement de l'aridoculture.

Ce séminaire est organisé avec la collaboration de l'Union Européenne, du CIHEAM, de l'ORSTOM de l'UNESCO et de la FAO.

À l'initiative du CIHEAM Montpellier (FRANCE) et l'Institut des Régions Arides de Gabs (TUNISIE) et dans le cadre du ReSEAUPARCOURS un séminaire portant sur 'Gestion de l'espace pastoral en régions arides et semi-arides' s'est déroulé les 17-18 et 19 Octobre 1996 à Gabs et a regroupé des spécialistes de France, Maroc, Mali, Algérie, Mauritanie, Égypte et Tunisie.

Études sur la diversité biologique en Tunisie

Dans le cadre de la mise en œuvre des dispositions de la Convention des Nations Unies sur la Diversité Biologique ratifiée par la Tunisie en Mai 1993, le ministre de l'Environnement et de l'Aménagement du Territoire a été chargé d'effectuer une **Étude Nationale sur la Diversité Biologique**. Ce projet est financé par le PNUE et le GEF.

Diverses actions ont été entreprises en vue d'arrêter des stratégies et de mesures de conservation intégrées au développement socioéconomique du pays. Parmi les recommandations adoptées particulièrement durant les ateliers tenus le 26-27-28 Octobre 1995, 9-10 Janvier 1996 et les 18-19-20 et 21 Février 1997 on note:

1. La création d'une Commission Nationale pour la Conservation et la Biodiversité.

2. La création d'un Centre National des Ressources Génétiques.

- Inventaire des collections existantes
- Prospection et collecte
- Évaluation des ressources génétiques
- Documentation et information (Basée sur des données)
- Conservation (Banques de gènes).

3. La définition d'une stratégie en matière de conservation et utilisation durable de la biodiversité.

- Appui aux structures existantes
- Inventaire des espèces et variétés menacées
- Gestion rationnelle des écosystèmes
- Installation d'observatoires de la

biodiversité

- Mesures incitatives par la promotion du savoir faire et des pratiques locales et traditionnelles dans la perspective d'une conservation et d'une utilisation durable de la biodiversité
- Utilisation des ressources génétiques locales dans les programmes d'amélioration.
- Redéfinir nos méthodes de sélection pour l'an 2010 (adaptation à la sécheresse, au froid pour exploiter les eaux pluviales, modifier les techniques habituelles)

Un nouveau Centre de Technologie de l'Environnement

Un Centre International des Technologies de l'Environnement a été créé en Tunisie. Ce centre est construit grâce au concours des gouvernements du Royaume de Suède et de la République Fédérale d'Allemagne.

Ce centre est placé sous la tutelle du Ministère de l'Environnement et de l'Aménagement du Territoire et dont l'activité est répartie en quatre départements;

- Département du milieu naturel
- Département du milieu hydrique
- Département du milieu atmosphérique
- Département des déchets solides et de la pollution industrielle.

Country Presentations

Algeria

Algeria is subdivided principally into three large zones: (1) a littoral zone extending on 1200 km of coast, with a Mediterranean climate; (2) a zone with a continental climate, that comprises high tables, lands, steppes; and (3) a Saharan zone with a desertic climate comprising sandy dunes, plains and high mountains with a harsh climate, sheltering a specific vegetation type. Often, these different reliefs and climates constitute natural barriers to the dispersal of plant species.

According to Ozenda (1983), out of 1200 species in the Saharan flora about 25% are endemic. Quezel & Medail (1995) report 256 species endemic to Algeria. Also, the situation of Algeria in the Mediterranean basin seems to present a particular interest for its rich, abundant and diversified flora. This flora plays an important role in the ecological balance of the region. But, the social and economical development of Algeria and the repeated fires during the summer periods have put a major pressure on the natural environment. Because of this, the national flora is in a state of continual degradation and this leads to the decrease in range or disappearance of species. Thus, among the 3139 plant species cited by Quezel & Santa (1962) in Algeria, 1611 are considered as rare, and these represent 51% of the total flora. This shows the extent of the danger that threatens the Algerian flora. These numbers would have increased considerably to the extent that people in the towns and countryside are still very much attuned to the utilisation of wild plants in their daily life like:

Food plants

Arborescent species furnishing edible fruits, such as *Arbutus unedo*, *Ceratonia siliqua*, *Myrtus communis*, *Opuntia ficus-indica*, *Quercus ballota*, *Zizyphus lotus*.

Herbaceous species such as: *Asphodelus microcarpa* (roots), *Cichorium intybus*, *Cynara cardunculus*, *Foeniculum vulgare* (stems), *Malva sylvestris*, *Mentha pulegium*, *Mentha rotundifolia*, *Nasturtium officinale*, *Podospermum laciniatum*, *Rumex vesicarius*, *Smyrniolum satrum*, *Sonchus*

oleraceus, *Spinacia oleracea*, *Urospermum picroides*.

Forage plants

For domesticated animals, such as: *Artemisia herba-alba*, *Atriplex* spp., *Ceratonia siliqua*, *Ficus carica*, *Fraxinus excelsior*, *Hedysarum coronarium*, *Lolium multiflorum*, *Poa bulbosa*, *Stipatenacissima* and many other herbaceous species in the *Chenopodiaceae*, *Cruciferae*, *Gramineae* and *Leguminosae*.

Plants used in the traditional handicrafts

Acacia raddiana, *Rhus oxyacantha* and *Rhus pentaphylla* (leather tanning), *Aristida pungens* (fibres), *Erica arborea* (tobacco pipe making), *Ferula communis* (basket making), *Retama raetam* (ashes for tobacco), *Indigofera argentea*, *Lawsonia inermis*, *Pistacia lentiscus* and *Quercus ilex* (dye plants), *Spartium junceum* (fibres).

Many other ligneous species are used in the making of domestic instruments in wood and as fuel for heating.

Plants used in traditional medicine

Antiasthmatic: *Datura stramonium*, *Papaver rhoeas*, *Tussilago farfara*

Antirheumatic: *Inula viscosa*, *Peganum harmala*, *Opuntia ficus-indica*

Antiseptic, antispasmodic: *Lavandula stoechas*, *Reseda villosa*, *Rosmarinus officinalis*, *Rutachalepensis*

Chest complaints: *Juniperus oxycedrus* (cade oil), *Pinus* spp. (piner resin)

Diuretic: *Borago officinalis*, *Rhamnus alaternus*

Skin irritants: *Eryngium maritimum*

Purgative: *Globularia alypum*, *Viburnum tinus*

Aromatic plants and condiment plants

These are also used by town and rural populations.

Culinary herbs: *Laurus nobilis*, *Mentha viridis*, *Ocimum basilicum*, *Petroselinum crispum*, *Sinapis alba*, *Thymus vulgaris*

Decoctions: *Trigonella foenum-graecum*

Flavouring beverages: *Salvia officinalis*, *Lippia citriodora*, *Origanum vulgare*, *Paronychia argentea*

Flavouring cakes and pastries: *Anethum graveolens*, *Nigella arvensis*.

The irrational exploitation of wild plants by traditional healers and herborists is very important, even in the large towns. Algiers itself has about 150 herborists.

Concerned by the need for preservation of its natural resources, the Algerian state has set up an administrative framework (ministry, directorates for the environment) as well as passing legislation, such as:

Regulation n° 6728 of the December 20th 1967 relative to the excavation and to the protection of sites and historical and natural monuments.

Regulation n° 7338 of July 23th 1973, covering the ratification of the convention concerning the protection of the world heritage, both cultural and natural.

Regulation n° 7543 of the 17th of June 1975, covering a country code: regulation of the routes through the steppe.

Decreets n° 82437; n° 82439; n° 82440 of the 11th December 1982 including the ratification of:

the cooperation protocol between countries of North Africa for the struggle against the desertification, signed on the 2nd of May 1977.

the convention relative to the wet zones of an international importance signed on the 2nd of February 1971 in Iran.

the African convention on the conservation of nature and natural resources, signed on the 15th of September 1963 in Algiers.

Decree n° 82498 of December 25rd, 1982 bearing the Algerian adhesion to the convention on the international trade of wild threatened fauna and flora, signed on the 3rd of March 1973 in Washington.

Decree n° 83459 of July 23rd, 1983 fixing the status of national parks.

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News from organizations

OPTIMA

(Organization for the Phyto-Taxonomic Investigation of the Mediterranean Area)

OPTIMA is an international association of botanists interested in the Mediterranean area. It encompasses botany in its widest sense and deals with all groups of plants and all disciplines which have an impact on systematic studies.

The purposes of OPTIMA are to stimulate and coordinate research activities, exploration, conservation and resource studies within the Mediterranean area; to promote the collation and exchange of information regarding the plant life of the region; to foster the training of Mediterranean plant taxonomists; and to support efforts to strengthen the resources and taxonomist infrastructure of Mediterranean institutions.

At present, a total of twelve commissions are actively working on specific research projects or initiatives. These initiatives are varied and cover different aspects of Mediterranean botany. The Commission for the Conservation of Plant Resources is actively working on the consolidation of a network of seed banks in the Mediterranean oriented to the conservation of wild species. Other activities carried out by this Commission are the maintenance of a database on studies on the biology of threatened plants of the Mediterranean basin and Macaronesia, and the advance in the knowledge of wild relatives of cultivated plant species. The Commission for Karyosystematics maintains a database with karyological information on Mediterranean plants. Additional information is collected and organized by the Commission for Current Research and the Commission for Floristic Investigation. The former periodically produces a catalogue of current research on Mediterranean botany whereas the latter reviews collecting activities throughout the Mediterranean. The Commission for Floristic Investigation also organizes an annual botanical expedition to a certain area of the Mediterranean. The last expedition was held in Calabria (Italy) in June 1997. Another two

active commissions are the Commission for Lichens, working at present on the compilation of a general checklist of Mediterranean Lichens and the Commission for the Mapping of Orchids in the Mediterranean Area.

OPTIMA's Publication Commission supervises the edition of *Flora Mediterranea* and *Bocconea*, two publications dedicated to biogeography, floristics and systematic botany, and published by the Herbarium Mediterraneum Panormitanum. Another OPTIMA publication is the *OPTIMA Newsletter* which is periodically published by the OPTIMA Secretariat in Madrid and includes information on the latest developments, activities and publications in Mediterranean botany. A further initiative in this field is the edition of a popular book on Mediterranean plant life by the Commission for the Diffusion of Knowledge on Mediterranean Plants. Aware of the latest advances in communications, OPTIMA has recently established the Commission for Information Transfer and Networking, with the mandate to promote and expedite the coordinated presence of OPTIMA, including data and results generated by its Commissions, on the Internet by using WWW access facilities.

Every three years, OPTIMA organizes an international meeting structured in multidisciplinary symposia which cover different aspects of Mediterranean botany. The IX OPTIMA Meeting is scheduled for May 1998 and will be held in Paris.

For further information please contact Dr. JOSE M. IRIONDO, OPTIMA Secretary, Dpto. Biología Vegetal, E.U.I.T. Agrícola, Universidad Politécnica, E-28040 Madrid, Spain. Tel.: (+34) 13365934; Fax: (+34) 13365656; E-mail: iriondo@ccupm.upm.es; WWW: <http://www.bgbm.fu-berlin.de/OPTIMA/>

FAO

(Food and Agriculture Organization of the United Nations)

Two busy months for FAO's genetic resources and biodiversity programmes

D. Cooper and P. Griffie, FAO, Vialedelle Terme di Caracalla, 00100 Rome, Italy

In May, over nine days, representatives of one hundred and fifty two countries were in Rome for the seventh regular session of the Commission on Genetic Resources for Food and Agriculture (CGRFA). Their main task was to continue the delicate negotiations for the revision of the International Undertaking on PGRFA. The negotiator tackled the difficult issues of access to genetic resources, and the sharing of benefits derived from their use. Particular attention focused on the issue of "Farmers' Rights" that recognizes the enormous contribution made by farmers and their communities in the conservation and development of PGRFA. This was one of the areas of fierce contention; the Angolan Representative, summed up the position of the African nations: 'What is in farmers' fields is farmers' property, and is not our stone to be gobbled away'. At the same time, delegates emphasised the need to maintain access to samples of plant genetic resources, to enable continued progress in improving crop productivity and agricultural sustainability. Satisfaction was expressed at the progress made in the negotiations. Delegates called for high-level political involvement in this issue.

This was the first session of the Commission under its broadened mandate which now includes forest plants, animal and fish genetic resources important for food and agriculture. Inter-governmental Technical Working Groups were established. One to deal with monitoring the progress on the Global Plan of Action for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture which was adopted by the major International Technical Conference on Plant Genetic Resources held in June 1996 in Leipzig. The other to further develop the Global Strategy for the

News from organizations

Management of Animal Genetic Resources. Harnessing genetic resources for food and agriculture will be key to meeting the objective of 'food for all' set by heads of state at FAO's

World Food Summit last year. The CGRFA Secretary, Dr. Jose Esquinas-Alcazar pointed out how rapidly the basis of food production is being whittled away: 'Over thousands of years, men and women farmers have developed untold numbers of local varieties - 'landraces' - that suited local conditions and needs. The genetic basis of agriculture which we have inherited from our ancestors is now seriously threatened: less than 100 cultivated plants and five animal species now provide over 75 percent of human food. Four plant species alone - rice, maize, wheat and potato, and three animal species - cattle, swine and chickens, provide more than half of it. Yet more than 80,000 biological species in tropical forests are considered edible. In fisheries, only two genera, carp and tilapia, have seen significant domestication for world food production.'

Much progress was made in June when the Secretariats of FAO and the Convention on Biological Diversity met at FAO for a week of discussions, supported by the Netherlands with IPGRI also taking part. The theme was 'Farming systems: Approaches for the Sustainable Use and Conservation of Agricultural Biodiversity and Agro-ecosystems'. The organizations discussed ways they could support countries in developing national programmes, plans and strategies for agrobiodiversity conservation and use in the wider context of biodiversity in general. Progress was made on developing a joint programme of work on agrobiodiversity as a follow up to the meeting of the Conference of the Parties to the Convention last November. A Memorandum of Understanding is being prepared. Case studies on IPM and aquaculture will be presented to the Convention's SBSTTA at their next meeting in September.

Earlier in June, Professor Vernon Heywood, convenor of the research component on 'Conservation of the genetic diversity of wild species' of the DIVERSITAS programme, visited FAO and held discussions involving

technical staff from FAO, IPGRI and the Commission. It was agreed in principle to convene a series of meetings hosted by DIVERSITAS at which FAO, DIVERSITAS and other relevant organizations would exchange information and concepts regarding the genetic conservation of wild species of interest to food, agriculture and other aspects of human livelihood security and put in hand an inventory of activities and identify action gaps, and then establish priorities for action in the light of the mandates of the organizations involved. This would contribute to the work programme on agrobiodiversity established by the CoP in Buenos Aires, including the joint activities between FAO and the CBD Secretariat referred to above, as well as to the relevant sections of the Global Plan of Action.

The consortium of organizations involved in the meetings could serve as a means of promoting cooperation and coordinating those activities in the area of genetic conservation of wild species that are not at present closely linked.

Non-Wood Forest Products

Paul Vanomme, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy

The term 'non-wood forest products' (NWFP) and the similar terms 'minor-', 'secondary-', and 'non-timber-' forest products, have emerged as umbrella expressions for the vast array of both animal and plant resources other than wood (or timber in the case of 'non-timber-') derived from forests or forest tree species. NWFP may be gathered from the wild, produced as (semi-) domesticated plants in plantations or in agroforestry schemes, or produced in intermediate production systems of varying degrees of domestication. Their wild or semi-domesticated status distinguishes them from well-established agricultural crops such as oil palm, cocoa, coconut, rubber or coffee.

Non-wood forest products have attracted considerable global interest in recent years due to increasing recognition of their contribution to household economies and food security, to some national economies, and to environmental objectives, including the conservation of

biological diversity. Some 80 percent of the population of the developing world use NWFP for health and nutritional needs. Several million households world-wide depend heavily on these products for subsistence consumption and/or income. NWFP also provide raw materials for large-scale industrial processing, including for internationally traded commodities as foods and beverages, confectionery, flavourings, perfumes, medicines, paints or polishes. Presently, at least 150 NWFP are significant in terms of international trade, including honey, gum Arabic, rattan, cork, forest nuts and mushrooms, essential oils, and plant or animal parts for pharmaceutical products.

Since 1991 the FAO Forestry Department has maintained a programme, 'The promotion and development of Non-Wood Forest Products', aimed at enhancing the sustainable utilization of Non-Wood Forest Products in order to contribute to the wise management of the world's forests and the conservation of their biodiversity, and to improve food security for rural people.

The programme, which is among FAO's priority forestry activities, comprises three main elements:

- gathering, analysis and dissemination of key technical information on NWFP;
- full appraisal of the socio-economic contribution of NWFP;
- improved networking among individuals and organizations concerned with NWFP.

Gathering, analysis and dissemination of key technical information

Specific categories of NWFP and relevant issues in relation to their development are highlighted in the publication series, 'Non-Wood Forest Products'. Nine volumes have been published to date including: *Flavours and Fragrances of Plant Origin*; *Natural Colorants and Dye Stuffs*; *Edible Nuts*; *Non-Wood Forest Products for Rural Income and Sustainable Forestry*; *Trade restrictions affecting international trade in non-wood forest products*; and *Domestication and Commercialization*

News from organizations

of NWFP through Agroforestry Systems.

In line with the recommendations of the World Food Summit (Rome 1996), special attention has been focused on non-wood forest resources that are (or have the potential to be) used as food, food additives, or for medicinal purposes. In this regard, the Non-wood Forest Products series will publish volumes on Tropical Palms, and Medicinal Plants in 1997. Volumes on 'Harvesting of NWFP', 'NWFP from pines', and 'The Contribution of NWFP to food security' (working titles only) are presently being studied or are under development.

Appraisal of the socio-economic contribution of NWFP

Comprehensive statistical data on production and trade of NWFP are essential for accurate appraisal of their true socio-economic contribution to sustainable development. This, in turn, will facilitate the elaboration (and acceptance by policy and senior decision makers) of appropriate policies leading to a more equitable access to non-wood forest resources and to a fair distribution of benefits obtained from NWFP. Although FAO has already assembled a wealth of information on the socio-economic role of many NWFP, the information base is still far from being comprehensive or global in scope.

Based on responses to a questionnaire used to identify all those agencies, companies and individuals who are involved in one way or another with the promotion and development of NWFP, and may have socio-economic data on NWFP, a database is being developed to store and retrieve data on: organizations, agencies and companies; the location and kind of products which are the focus of their work; the socio-economic contribution of NWFP; critical gaps in thematic issues or geographic coverage. A directory of organizations involved in NWFP will be published under the Non-Wood Forest Products series and will also be available on the Internet.

Improved networking

To improve networking, an annual bulletin, 'Non-Wood News', compiled from voluntary contributions links

more than 1,200 relevant individuals and organizations world-wide. Recent issues of this bulletin are available on the Internet (<http://www.fao.org/waicent/faoinfo/forestry/nwnews>).

To increase awareness on NWFP and strengthen national collaboration at the regional level, FAO's Wood and Non-wood Products Utilization Branch (FOPW) has organized three regional expert consultations: Asia and Pacific Region, Bangkok, Thailand, 1991; Anglophone African Countries, Arusha, Tanzania, 1993; Latin America and Caribbean, Santiago, Chile, 1994. Two global expert consultations have also been organized: 'Social, Economic and Cultural Dimensions of NWFP', Bangkok, Thailand, 1994; and the 'Interregional Expert Consultation on NWFP', Yogyakarta, Indonesia, 1995. During 1997, two workshops will be co-organized by FOPW: 'Medicinal, Culinary and Aromatic Plants in the Near East', Cairo, Egypt, 19-21 May; and 'Expert Consultation on NWFP in the Congo Basin', in Cameroon in September (date and venues still to be determined). In addition, preparation has started for expert consultations on 'NWFP from Boreal Forests' and on 'NWFP from the North American Region'.

The heterogeneous nature of NWFP and the multitude of their end-uses calls for multidisciplinary involvement and coordinated efforts. A number of activities have been started recently in collaboration with other agencies and NGOs, dealing with specific aspects of NWFP, including: UNIDO (processing), ICRAF (domestication), Gifts of Health (a UK-based NGO on medicinal plants).

Requests for additional information should be addressed to:

Chief, Wood and Non-wood Products Utilization Branch
Forest Products Division
FAO
Viale delle Terme di Caracalla
00100 Rome, Italy
Tel: 39-6-52254056
FAX: 39-6-52255137
E-mail: Paul.Vantomme@fao.org
Intert: <http://www.fao.org>

ICUC

(International Centre for Underutilised Crops)

Dr. Nazmul Haq, Int. Centre for Underutilised Crops
Lanchester Building, University of Southampton
Southampton SO17 1BJ, UK.

The International Centre for Underutilised Crops (ICUC), an autonomous, non-profit, scientific research and training centre was established in 1988. The goal of the Centre is food security, nutrition and economic welfare of human beings improved through the sustainable and increased economic production for food and industrial raw materials, by assessing, developing and utilising the untapped biological diversity of underutilised crops and species.

ICUC has been active in a survey to assess the genetic diversity and status of genetic erosion of tropical fruit trees in Asia. However, many of these species are now becoming scarce due to erosion of their natural habitats. The objective is to determine the national priority species, assess their genetic diversity and use this diversity for development through a network of scientists who are involved in tropical fruits research in the region. Because of the interests shown by the National Agricultural Research Systems (NARS), a Network on Underutilised Fruits for Asia (UTFANET) has been established in collaboration with FAO, IPGRI, APAARI and CSC to promote and commercialise the priority species. Already eight governments of the region have agreed to work together and ten priority species for the region have been agreed. Projects funded by the British ODA on the genetic diversity, germplasm collection and development of propagation systems of two priority species (Jackfruit and Pummelo) started in December 1995.

A regional network for southern and eastern African underutilised crops (SEANUC) was established in 1995 in cooperation with the CSC under the aegis of FAO, following a resolution made at a regional meeting on Genetic Resources and Utilisation of Underutilised Crops in Southern and Eastern Africa held in 1995. Priority species for the network have been

News from organizations

identified and a project started on information gathering on the conservation status and use of genetic resources in 12 participating countries.

ICIC uses the comparative advantages of national institutions in developing countries. A good example on field work on variability and domestication of wild species is the ICUC Sheanut project in West Africa, implemented in collaboration with the Cocoa Research Institute of Ghana at its northern substation at Bole and funded by the Lverhulme Trust, U.K. The research involved a farmer-participatory survey in which the farmers (who do not actually farm the trees but collect the nuts from wild trees that are valued and preserved in the environment) assessed the genetic diversity and identified the 'best' trees for conservation.

A similar project on indigenous vegetables of Southern Africa started in September 1996. Indigenous vegetables are important for subsistence farmers as they obtain nutrition from them. ICUC in cooperation with the University of Fort Hare, South Africa, has developed a project on the collection and assessment of the genetic diversity in three species (*Amaranthus* sp., *Cleome gynandra* and *Tylosema esculentum*) for their use in crop improvement. The

project is funded by the UK Office of Science and Technology.

ICUC runs courses overseas in partnership with Universities and Research Organisations. A 3-week course was organized on 'Genetic resources of underutilised crops: conservation and utilisation' in the Malaysian Agricultural University (UPM). A 2-week course on 'Conservation management and utilisation of tropical fruits' has also been arranged jointly with IPGRI in India.

ICUC has published a number of books on genetic resources of underutilised crops. These include: 'Underutilised Tropical Plant Genetic Resources: Conservation and utilisation'; 'Utilisation of Underutilised Crops in Southern and Eastern Africa'; and 'Promotion of Traditional and Underutilised Crops'.

ICUC has organised several regional and international conferences. The most recent ones were: 'Genetic resources and underutilised crops in Southern and Eastern Africa' at Nelspruit, South Africa and 'An international conference on domestication, production and utilisation of new crops: Practical approaches' held in the U.K. in 1996.

News and notes

A domestication programme for Mediterranean legume shrubs

In 1985, a living collection of shrubby, nonspiny leguminous plants was established as a complement to the seed bank at the Department of Plant Biology of the Escuela Técnica Superior de Ingenieros Agrónomos in Madrid. After over 10 years of direct sampling from wild populations and germplasm exchange with botanical gardens and similar institutions, over 400 taxa are stored as seeds and a growing plant collection of 50 different taxa and 70 different populations is now being grown at the experimental fields of the university. Moreover, a frozen collection of strains of potentially specific *Rhizobium* taxa complete this effort. The main genera present in this collection are:

Anthyllis, Chamaecytisus, Colutea, Coronilla, Cytisus, Dorycnium, Genista, Hedysarum, Hippocrepis, Medicago, Onobrychis, Teline and Trigonella.

Some of the above-mentioned taxa have been intensively propagated due to scarcity in nature or remarkable usefulness in forage production during unfavourable seasons, in rehabilitation of degraded soils or in increasing growth speed in native trees of the Mediterranean spontaneous woods.

We are now looking for further collaborations with other interested institutions with the purpose of increasing our collection and exchanging samples and bibliography on the leguminous flora of the Mediterranean basin.

Contact address:

JOSE LUIS CERESUELA &
FERNANDO GONZALEZ ANDRES,
Dept. Biología Vegetal,
Escuela Técnica Superior de Ingenieros
Agrónomos,
Universidad Politécnica, Ciudad
Universitaria,
E-28040 Madrid,
Spain

Medicinal plants of the Maghreb

IUCN-The World Conservation Union is financing in 1996-97 a programme of inventory and conservation of medicinal plants of Algeria, Egypt, Libya, Morocco and Tunisia. The short-term objectives are:

- Inventory of medicinal plants
- Development of a national strategy for the conservation of medicinal plants
- Identification of important regions for medicinal plants

The coordination of this programme is being undertaken by the Association Tunisienne de Protection de la Nature et de l'Environnement (ATPNE).

Biology in the Twenty First Century

The Arab Biologists Union in cooperation with Royal Jordanian Biologists will hold a symposium on **Biodiversity in the Arab Countries** on 8-11 November 1997 in Amman, Jordan. The symposium will deal with the different components of biodiversity in the Arab countries in West Asia as well as in North Africa.

It will cover: plants, animals and microorganisms. Stress will be made on the characteristic biodiversity in this part of the world. The present status of biodiversity will be monitored and the efforts for conservation will be discussed. This will give an opportunity for experience exchange and for cooperation between the different countries and institutions working on biodiversity. Symposium language will be Arabic and English.

Anthropologist working on plant genetic resources

Joshka Wessels, Associate Expert-Regional Information Officer, will be working at the IPGRI-WANA regional office in Aleppo, Syria. The position has been created for the WANA group to give special attention to the important area of information services and publications in the regional context.

Joshka Wessels studied visual anthropology in Leiden, the Netherlands. She wrote her thesis on communication within a health education programme in Sudan and produced several videos and a CD-ROM during her studies. The main focus of her work will be on information services such as library services, newsletters, audiovisuals, Internet and public awareness materials. Attention will also be given to documentation of indigenous knowledge of PGR in the WANA region as Joshka has an anthropological background.

Book Reviews

UNEP. *Global Environment Outlook*. United Nations Environment Programme. Distributed by Oxford University Press, New York and Oxford. 1997. pp.viii + 264. ISBN: (PBK) 0-19-521349-1, ISBN: 0-19-521351-3, ISSN: 0-1366-8080. Paperback US\$24.95; hardcover US\$39.95.

This first issue of what is planned as a biennial series of reports was commissioned by UNEP in response to the environmental reporting requirements of Agenda 21 and to a UNEP Governing Council Decision of May 1995 requesting the preparation of the first of a new comprehensive State of the Environment Report series in time for the UNEP Governing Council Meeting of January 1997. It is therefore intended as a snapshot of an ongoing world environmental assessment process.

The Global Environment Outlook (GEO) Project involves collaborating centres, working groups, scientific and policy consultations and United Nations participation. This first volume GEO-1 is essentially a review of global environment issues from regional perspectives. The bulk of the text consists of a chapter devoted to regional perspectives, another to policy responses and directions and a final chapter entitled 'Looking to the future'. Amongst the major issues dealt with are land, forests, biodiversity and marine and coastal environments. The regional perspectives for Africa, Europe and West Asia are the ones that are of most interest to MEDUSA readers. The book contains some useful tables, maps and statistics illustrating various factors or trends such as soil degradation, protected areas, threatened coastal ecosystems, loss of cropland, and projected changes in the geographical distribution of 'domesticated' and 'non-domesticated land'. There is an extended executive summary.

The overall conclusion that is drawn will cause little surprise: 'Significant progress has been made in confronting environmental challenges.

Nevertheless, the environment has

continued to degrade in all regions. Progress towards a sustainable future has simply been too slow.'

GEO 1 is also available on the Internet. Kenya: <http://www.unep.org/unep/eia/geo1/>, USA: <http://grid2.cr.usgs.gov/geo1/>

V. Heywood

Dawud Al-Eisawi, *Vegetation of Jordan*. UNESCO Cairo Office, Cairo. 1996. pp.284. No price indicated.

This is an outline account of the vegetation and plant life of Jordan, with special reference to the effects of human action and the need for conservation. After a routine of the geology and physical characteristics of the country, there is a chapter on the biogeographical regions and then a review of the vegetation types. This is followed by a chapter on special vegetation areas of Jordan such as the Wadi Araba, the Dana Reserve and the Azraq Basin.

Further chapters deal with human influences on the natural plant cover, and biodiversity with special reference to the causes of biodiversity loss in Jordan and the importance of plants as genetic resources such as food plants, wild relatives of crops, ornamentals, and medicinals. The book concludes with a chapter on conservation and makes a set of recommendations for action to conserve and sustainably use the plant resources of the country.

The book is well illustrated with diagrams and numerous colour plates. There is an extensive bibliography and an index. This is a useful compilation and will be a valuable source of reference.

V. Heywood

O. Delanoë, B. de Montmollin & L. Olivier and the IUCN/SSC Mediterranean Islands Plant

Specialist Group. *Conservation of Mediterranean Island Plants. 1. Strategy for action*. IUCN, Gland, Switzerland and Cambridge, UK. 1996. Available from IUCN Publications Unit, 219 Huntingdon Road, Cambridge CB2 0DL, UK. ISBN: 2-8317-0351-4.

As the executive summary notes, the Mediterranean Basin with nearly 500 islands and islets includes one of the largest island groups of the world, many of the richest in plant diversity. But its land habitats are especially vulnerable to modification through human activities, notably as a result of tourism in recent years and this has put many species and populations at risk. Unfortunately your knowledge of the distribution and status of species is incomplete, and little information is known about their demography, reproductive biology and habitat preferences. It is difficult in such circumstances to make an effective conservation action. To combat this, the Mediterranean Island Plant Specialist Group has prepared a strategy for action for island plants and their habitats that it is hoped will provide one of the basic components of an overall biodiversity conservation programme covering the entire Mediterranean Basin.

The text provides a useful survey of the Mediterranean flora and its islands and reviews our current state of knowledge, identifying gaps and research needs. A summary is given of the current situation on the major islands based on presentations made at the 1993 Ajaccio symposium on 'Knowledge and conservation of the Mediterranean island flora', the proceedings of which were published in *Ecologia Mediterranea* vol. 21 in 1995. A chapter covers conservation legislation and other measures and lists the main protected areas in the Mediterranean islands. Finally an Action Plan is outlined.

Altogether this is a valuable and well-presented document. Let us hope that the strategy for action outlined can be implemented soon.

V. H. Heywood

Book Reviews

Rejdali, M. & Birouk, A. (Eds).
*Diversite Biologique & Valorisation des
Plantes Medicinales*. Actes Editions,
Rabat. 1996. pp. 256. ISBN: 9981-
801-26-7. No price indicated.

This volume represents the proceedings of a 'Rencontre francophone de Cooperation et de Partenariat' held at the Institut Agonomique et Veterinaire Hassan II, Rabat, Morocco in September 1995. While most of the papers are concerned with various aspects of medicinal plants in tropical Africa, several deal with North African countries. These include a review by Rejdali of the flora of Morocco and its conservation, an evaluation of the medicinal and aromatic plants of Morocco by Ismaili-Alaoui and a paper by Chemlion on the valuing of plant resources used in traditional medicine. It ends with a synthesis of the meetings and a set of recommendations that will be of interest to those concerned with medicinal and aromatic plants in the Mediterranean. The book is well produced and a useful addition to the literature in this field.

V.H. Heywood

A. Birouk & M. Rejdali (eds).
*Ressources Phyto-genetiques et
Developpement Durable*. Actes Editions,
Rabat. 1997. pp. 372. ISBN: 9981-
801-30-5. No price indicated.

This volume contains the proceedings of a National Seminar organized by the Comite National des Ressources Phyto-genetiques of Morocco on plant genetic resources and sustainable development. It begins with a series of scene-setting papers on: biodiversity and sustainable development (Heywood), economic aspects of biodiversity conservation (Heywood), the FAO network of plant genetic resources (Ringlund), biotechnology transfer under the Convention on Biological Diversity (Krattiger), Botanic gardens and botanical conservatories (Olivier), the activities of CIHEAM regarding

teaching and research in plant genetic resources (Navarro) and domestic genetic heritage and traditional knowledge (Cossa-Raynaud). Most of the main text of the book deals with various aspects of plant genetic resources in Morocco: cereals, forestry, pasture species, fodder shrubs, food legumes, date palm, olive, disease resistance, sorghum, ecosystematic approaches to conservation and national strategies. In addition there are single papers on each of Algeria, Senegal and Tunisia and summaries of posters presented at the meeting. It concludes with a series of recommendations. This book contains a mass of information and will be an invaluable reference source for anyone interested in plant genetic resources of North Africa, arid zones and the Mediterranean region.

V.H. Heywood

IPGRI/FAO. *International Technical Conference on Plant Genetic Resources: Preparatory process for West Asia and North Africa*. IPGRI/FAO Rome. 1996. IPGRI/FAO (1996) International Technical Conference on plant genetic resources: Preparatory process for West Asia and North Africa. Published by IPGRI/FAO Rome. ISBN 92-9043-286-1

The book contains three different sections. The first is a subregional synthesis on the status of plant genetic resources in South West Asia (Afghanistan, Bahrain, Iran, Iraq, Kuwait, Oman, Pakistan, Qatar, Saudi Arabia, Turkey, United Arab Emirates, and Yemen) (33 pages). It comprises an assessment of Plant Genetic Resources programmes and activities in the Subregion and deals with the needs, opportunities and constraints facing the conservation of PGR. The second section is a subregional synthesis on the status of PGR in East and South Mediterranean Subregion (Mauritania, Morocco, Algeria, Tunisia, Libya, Egypt, Jordan, Palestine, Lebanon, Syria, Cyprus, and Turkey) (32 pages).

The third section deals with a synthesis on the status of PGR in Central Asia countries (Azerbaijan, Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan) (7 pages). The book covers also the subregional preparatory meeting held in Tehran, Iran 9-12 October 1995, as well as the subregional preparatory meeting held in Tunisia, Tunisia 16-19 October 1995 with all the recommendations that came out of these meetings for the preparation of the Global Plan of Action for the Conservation of Plant Genetic Resources for Food and Agriculture that was discussed at the International Technical Conference which was held in Leipzig, Germany on June 17-23 1995.

Y. Barkoudah

Shalabi, M. N., Rayes, R., Ghazal, A. and Aswad, N. G. *Preliminary ecological and phytogeographic study of wild *Amygdalus germplasm* in Syria*. IPGRI and ACSAD. 1997. (in Arabic). 75 pp. 36 coloured plates and 18 drawings. ISBN 92-9043-316-7. Available from IPGRI/WANA.

This booklet is one of the results of the IPGRI/WANA Group's efforts to study and conserve fruit and nut plant genetic resources in cooperation with the Arab Centre for the study of Arid Zones and Dry Lands ACSAD. The booklet is based on an extensive field survey of the stands of five wild almond species, *A. orientalis*, *A. spartioides*, *A. korschinski*, *A. arabica*, and *A. communis*. For each species, information is given about its geographical distribution, ecology and habitat. There is also a special section on the propagation of these species.

The booklet covers diagnostic characters and demonstrates that *A. orientalis* has several morphological and ecological types but the authors refrain from giving them a taxonomic rank. It shows also that *A. korschinski* is variable. Emberger's bioclimatic index was used to demonstrate the amplitude of ecological tolerance of each species. Special attention is given

Book Reviews

to the local use of these plants as live fences and as food. It is interesting to read in it that some forms of *A. orientalis* have edible pits.

Although the study is based on a large number of samples, the authors did not see the type specimens, nor did they try to elaborate on the difference between *A. spartioides* and *A. arabica*. *A. agrostis* is left in the shadow of doubt. Indeed it is not clear whether the authors recognise it or not.

Y. Barkoudah

Jaradat, A. A. (ed). *Plant Genetic Resources of Jordan. Proceedings of a National Seminar* (2-4 August 1994 Amman, Jordan). IPGRI/WANA Group, Aleppo, Syria. 1996. 272 pp. ISBN 92-9043-301-9

This book contains 17 papers by 23 Jordanian researchers working in agricultural research, the universities, IPGRI or ICARDA. It is divided into five sections: After an overview of biodiversity in Jordan, the genetic resources of major crops in Jordan are presented in different papers covering plant genetic resources of cereals, food legumes, forage legumes, range plants, medicinal plants, fruit trees and forestry. Conservation and utilisation of plant genetic resources, biotechnology are also treated in the third section. The fourth section deals with co-operation between agricultural research in Jordan, ICARDA and IPGRI. A major outcome of this workshop was the formation of a national committee on the plant genetic resources of Jordan. The recommendations make the fifth section of the book. They are the basis for a national strategy and plan of action for the conservation of plant genetic resources in Jordan.

Y. Barkoudah

Barkoudah, Y. Adham, Y. and M. Abi Antoun (eds). *Proceedings of the First National Workshop on plant genetic resources in Lebanon* (29 April 1995 Tell Amara, Lebanon) (in Arabic). Published by IPGRI/WANA Group, Aleppo, Syria. 1996. 6 pp. ISBN 92-9043-287-x

This book includes 11 papers presented in the workshop. It is divided into three sections: section one deals with conservation and evaluation of plant genetic resources and the role of NGOs and the Church in biodiversity conservation. The second section deals with plant diversity of the flora, wild relatives and forests of Lebanon. The third section deals with plant genetic resources of food legumes, cereals, range and forage plants. The book ends with recommendations for the conservation of plant genetic resources. The outcome of this workshop was the nomination of a National Committee for the Conservation of Plant Genetic Resources.

The data in this book can be considered as a starting point for the survey, documentation and conservation of plant genetic resources. It highlights the constraints and difficulties that conservation faces in Lebanon.

Y. Barkoudah

Jaradat, A. (ed). *The first workshop on plant genetic resources in Yemen*. IPGRI/WANA Group, Aleppo, Syria. 1997. 212 pages (in Arabic). ISBN 92-9043-312-4

The book includes the papers presented during the workshop held in Ta'izz on the 12-14 December 1993. There are 14 papers prepared by 23 researchers

working in the Agricultural Research or the Universities of Yemen. The book contains basic information on the agricultural resources and climate in Yemen. It gives details of the different plant genetic resources in the country so far known. A brief history of PGR collecting in Yemen and the institutional framework for PGR are presented. Cereals, food and forage legumes, legumes, date palm and fruit trees, coffee and range plants genetic resources are treated. The workshop was a starting point for the establishment of a National Committee on plant genetic resources.

Y. Barkoudah

Forthcoming events

1997

September

28th International Symposium on

Essential Oils (ISEO). Eskiehir, Turkey. 1-3 September 1997.

Contact: Prof. K.H.C. Baer, Anadolu University, Medicinal and Aromatic Plant and Drug Research Centre (TBAM), 26470 Eskiehir, Turkey. Fax: 902223350127. Email: tbam@vm.baum.anadolu.edu.tr

October

III International Congress.

Ethnobotany 97. Ethnobotany as a basis for sustainable management.

October 12-17, 1997, Merida, Yucatan (Mexico).

Contact: Jose Salvador Flores Guido, Executive President of the Congress Organizing Committee. P.O. Box 4-116, Itzimna, Merida, Yucatan, Mexico. Fax: 99234009

Eleventh World Forestry Congress: Forestry for Sustainable

Development Toward the 21st

Century. Antalya, Turkey. 13-22

October

Contact: Luis Botero, FAO, Forestry Department, Viadelle Terme de

Caracalla, 00100 Rome, Italy. Fax: +39 652255137

New Directions in Systematics. The Fifth and Final Workshop of the European Science Foundation Network in Systematic Biology.

Hersonisos, Crete, 15-18 October 1997.

Contact: Ms Nicola Donlon, ESF Network in Systematic Biology, The Natural History Museum, London SW7 5BD, UK. Fax: +171 9389506. Email: n.donlon@nhm.ac.uk

November

2nd World Congress on Medicinal and Aromatic Plants for Human

Welfare (WOCMAPII). November 10-15, 1997, Mendoza (Argentina).

Contact: Dr. A.L. Bandoni, Sociedad Argentina para la Investigacion de Productos Aromaticos Libertad 1079, 2° Piso. 1012 Buenos Aires (Argentina). Fax: 5419617637

3rd International Symposium on Olive Growing.

Chania, Crete, Greece, 22-26 September 1997.

Contact: Dr Ioanni Metzidakis, Subtropical Plants and Olive Tree Institute, 73100, Chania, Greece. Fax: +3082193963.

1998

February

International Conference on Medicinal Plants. Conservation, Utilization, Trade and Biocultures.

Bangalore, India., 16-20 February 1998.

Contact: Foundation for Revitalisation of Local Health Traditions (FRLHT), No 50, 2nd Stage, MSH Layout, Anandnagar, Bangalore- 560024.

Fax: +91803334167. Email: root@frlht.ernet.in

March

International Workshop on Medicinal and Aromatic Plants in the Mediterranean: Local

knowledge, in situ conservation and

markets. Coimbra, Portugal, 20-22

March 1998, followed by Study Tours,

22-27 March 1998. Organized by

TRIBO (Portuguese Resource Centre for Indigenous Knowledge),

BIOSEMEN (Portuguese Association for Genetic Resources) and AGROBIO

(Portuguese Association of Organic Agriculture).

Contact: TRIBO, Apartado 1022, 2780

Pacode Arcos, Portugal.

Fax: 35114420095.

Email: tribo@mail.telepac.pt

Reports of meetings

Algeria

Seminaire national sur la biodiversite phyto-genetique (prospection, evaluation, conservation), 11-13 Mai 1996, Constantine (Algerie).

Les themes abordés ont portés sur l'évaluation, la valorisation et l'amélioration génétique des populations sauvages et cultivées d'intérêt économique.

Contact: Dr. N. Kharfallah, UFR de génétique et amélioration des plantes, Institut des Sciences de la Nature, Université de Constantine, Route d'Ain El Bey, 25000 Constantine, Algerie.

1er Colloque National sur les plantes médicinales, 20-21 Mars 1996, Ghardaia (Algerie).

La manifestation a porté sur les plantes médicinales algériennes, les plantes mellifères et le miel, ainsi que sur le contrôle de qualité des médicaments. Elle a été organisée par la FOREM.

Egypt

A workshop on 'Standardization of herbal extracts and ensuring the safety, efficacy and quality control of herbal remedies' was organized on 9-12 December 1996 by the National Organization for Drug Control and Research (Cairo, Egypt) in collaboration with WHO. Lectures were given on quality control of herbal remedies; algae; analysis of residual insecticides, and pesticides in plant extracts; phytomedicine markets, statistics, trends and analyses; and the use of the wild flora of Egypt as a phytotherapy in dermatology and cosmetics.

The 25th Conference of Pharmaceutical Sciences, organized by the Egyptian Pharmaceutical Society, was held in Cairo 24-26 December 1996. About 100 scientific papers were given, including 22 in the field of pharmacognosy and medicinal plants. Eight symposia were held, including one on 'Herbal Medicine, Economy and Utilization'; the moderator was Professor Mohammed Younis Haggag, one of the MEDUSA

Focal Point Coordinators.

Syria

The origins of Agriculture and Domestication of Crop Plants in the Near East, Harlan Symposium,

10-14 May 1997 Aleppo, Syria.

This international symposium of plant biologists and archaeologists was organised by the International Centre for Agricultural Research in the Dry Areas (ICARDA), Genetic Resources Conservation Program University of California, Institut de Préhistoire Orientale CNRS, International Plant Genetic Resources Institute (IPGRI), Department of Antiquities, Syria, Institut Français d'Archéologie au Proche Orient (IFAPO). A total of 30 papers were presented dealing with domestication, environmental changes, spread of agriculture, genetic relations and evolution, genetic diversity, archaeological findings. The Proceedings are in press and will be distributed by ICARDA, P. O. Box 5466, Aleppo, Syria.

Algeria

2eme Colloque National sur les Plantes Médicinales.

Avril 1997, Mostaganem (Algerie). Organisé par la FOREM (Fondation Nationale pour la Promotion de la Santé et le Développement de la Recherche Médicale). **Contact:** Pr. M. Khiati, Centre Culturel de Hussein Dey, Hussein Dey Alger.

International

1st International Conference on Anthropology and History of Health and Diseases and the 3rd European Colloquium on Ethnopharmacology (1ere Conference Internationale d'Anthropologie et d'Histoire de la Santé et des Maladies et 3e

me Colloque Europeen d'Ethnopharmacologie).

29 May-2 June 1996, Genoa (Italy).

A workshop was organized on poisonous and medicinal plants of the Mediterranean Basin.

Contact: Pr. A. Guerri, Dipartimento di Scienze Antropologiche, Università degli Studi di Genova, Via Balbi, 4-16126 Genova (Italia).

Congres International ECODEV 96

12-16 Novembre 1996, Adrar (Algerie).

Cette manifestation scientifique a porté sur l'évaluation des méthodes d'approche de l'écodeveloppement des zones arides et semi-arides.

Contact: K. Mederbal, Université Djillali LIABES, Sidi-Bel-Abbes, Algerie.

An International Expert Meeting on **Medicinal, Culinary and Aromatic Plants in the Near East** was held from 19-21 May at the Ministry of Agriculture in Cairo, Egypt. MEDUSA was represented by the chair of the Steering Group, Professor Vernon Heywood, who was invited to participate as a resource person and present a plenary lecture on 'Plant resources and their diversity in the Middle East'.

The aim of the meeting was to obtain a better insight into the present resource situation and utilization of medicinal, culinary and aromatic plants of the Near East region from wild sources, their potential and the problems and issues to be addressed for their sustainable use and development. It was attended by 20 experts from Cyprus, Egypt, Iran, Jordan, Sudan, Syria, Tunisia and Turkey as well as representatives of FAO and MEDUSA. The meeting found that there was a serious lack of information about the species concerned, their properties, forms of utilization, harvesting, production and trade statistics and their socio-economic importance. It was recommended that a regional database on medicinal, aromatic and other non-wood forest products of the Near East be established, including the creation of a Directory of expertise and

activities, and that networking amongst the key institutions be improved to strengthen information exchange, technology transfer, development of regional statistics, regional training programmes. It was also concluded that there was a lack of a coherent policy conservation for the conservation and sustainable use of these resources and recommended action to be taken to review current national forest legislation to identify critical gaps, provide assistance to governments for the development of comprehensive strategies for the conservation and sustainable use of medicinal, culinary and aromatic plant resources and to set aside gene reserves/conservation centres and study the feasibility of establishing regional gene banks on MAP in the Near East. Institutional aspects of product development and policy were also reviewed and it is recommended action on the preparation of marketing studies on important plants and the organization of training workshops on specific topics such as quality, marketing control, involvement of local people.

Contact: Dr Paul Vantomme, Wood and Non-Wood Products Utilization Branch
Forest Products Division, FAO, Viale delle Terme di Caracalla 00100 Rome, Italy
Fax: 39-6-52255137
Email: Paul.Vantomme@fao.org

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Decree n° 8501 of the 5th of January 1985 bearing the ratification of the protocol relatif to the specially protected areas of the mediterranean signed on the 4th of March 1982 in Geneva.

Law n° 83 of the 2nd of May 1983 relative to the protection of the environment of which 23 articles are devoted to the protection of the fauna and flora.

Law n° 84 of 23rd of June 1984 on the protection, exploitation and administration of forests, national parks and natural reserves. In spite of the existence of a national legal framework that allows the protection of the plant heritage to be carried out efficiently, plants are still exploited by people in an uncontrolled way.

Urbanisation, industrialisation and tourism continue to invade the habitats as well.

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Vegetation marine et aquatique en Tunisie

L'inventaire de la végétation marine et aquatique réalisée en Tunisie mentionne la présence de 4141 espèces dont 9 phanérogames aquatiques et 405 algues dont deux d'eau douce.

Articles and other material for the next issue of the MEDUSA Newsletters should be submitted by email or on diskette in Word 6 to the Editor no later than 31 October 1997

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MEDITERRANEAN AGRONOMIC
INSTITUTE AT CHANIA
PO Box 85
73100 CHANIA, GREECE
FAX: (+30) 82181154
E-MAIL: melpo@zorbas.maich.gr

Editor

PROF. VERNON H. HEYWOOD
SCHOOL OF PLANT SCIENCES
THE UNIVERSITY OF READING
WHITEKNIGHTS, PO Box 221
READING RG6 6AS, UK
TEL: (+44) 1189318160/
1189780185
FAX: (+44) 1189891745
E-MAIL: v.h.heywood@reading.ac.uk



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