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in

Heywood V.H. (ed.), Skoula M. (ed.).
Wild food and non-food plants: Information networking

Chania : CIHEAM
Cahiers Options Méditerranéennes; n. 38

1999
pages 37-44

ETHNOBOTANICAL KNOWLEDGE SYSTEMS AND THEIR POTENTIAL FOR SUSTAINABLE USE OF WILD FOOD AND NON-FOOD PLANTS

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KEY-WORDS
ETHNOBOTANICAL KNOWLEDGE SYSTEMS (EKS), TRADITIONAL ENVIRONMENTAL KNOWLEDGE (TEK), BIO-CULTURAL DIVERSITY SUSTAINABLE USE, PARTICIPATORY R&D.

MOTS-CLES
SYSTEMES DE CONNAISSANCE BOTANIQUE INDIGENE ('EKS'), CONNAISSANCE TRADITIONELLE DE L'ENVIRONNEMENT ('TEK'), DIVERSITE BIO-CULTURELLE, USAGE DURABLE, R&D PARTICIPATOIRE.

INTRODUCTION

If we consider the general aim of the MEDUSA Network, described in its leaflet (1995) as: '*The identification of native and naturalised plants of the Mediterranean Region...*', we can observe a specification of initially thirteen forms of utilisation, such as the use for different kind of foods, for materials, fuels, poisons, as well as for gene sources. In this specification, we can further perceive the delineation of various forms of socio-cultural and environmental uses, and use for medicines, completed – as proposed during this Second Regional Workshop – with an important fourteenth category of 'cosmetic use' (*cf.* Baser 1997).

For anthropologists interested in local plant knowledge and practice, such behaviour-oriented objectives that seek to encompass the study and analysis of plant species within the local socio-cultural context of the communities involved, represent a true break-through in the conventional ethnobotanical approach since they go beyond the mere static registration of local plant- and crop-based taxonomies and classifications. Indeed, such an approach encompasses a more dynamic perspective of studying different patterns of knowledge and practice concerning wild plants as a process of interaction between 'local' or 'indigenous' and 'global' or 'cosmopolitan' knowledge systems: an approach lately referred to as the 'new' ethnoscience (*cf.* Warren, Slikkerveer & Brokensha 1995).

As such, the MEDUSA objectives do not only link up directly with the practical implications of such orientation for its network members, but also with the theoretical developments in the interdisciplinary socio-cultural botanical sciences. 'Practical' in terms of providing viable alternatives to existing use of wild food and non-food plants in the Mediterranean Region, and 'theoretical' in terms of contributing to the newly-developing field of Ethnobotanical Knowledge Systems (EKS).

CHANGING ATTITUDES TOWARDS IKS

It is well-documented that while modern systems of knowledge and practice developed in the Western world, the traditional knowledge systems were virtually marginalised, ignored, ridiculed and – as the case was with many indigenous peoples in the former colonies – put under heavy pressure of virtual disappearance and extinction (*cf.* Warren 1989; Slikkerveer 1996). Indeed, with the importation of many plant and crop species from the temperate zone of Western Europe and North America into the tropical and sub-tropical areas at that time, the initial success of cash crops placed many local varieties in a subordinate – if not superseded – position. It was only recently that such high-input food plants with their expensive support systems started to show a relative decrease in yields while financial and environmental costs to maintain these systems began to increase. In Africa, this process contributed to what is now called the 'Food Crisis' in 'agriculture, while in Asia, where the 'Green Revolution' initially had led to promising, increased yields in agriculture, the effects of over-investment and over-exploitation of resources are now equally leading to such a decline in production that goes hand in hand with environmental degradation.

While the international call for 'alternative' solutions was made, accumulating evidence was brought together that a number of projects – that did not implement rural extension 'from the top' but sought to start 'from the bottom' – made an effort to recognise and adopt the local farmers' point of view and develop rather successfully as they produced in a more environment-friendly mode. It was these small-scale agricultural production units that not only put indigenous knowledge and methods into practice, but also grounded their strategies on a subsistence basis that gives priority to the maintenance of resources over the 'imported' objective of ever-increasing productivity and accumulation of surplus. Moreover, such local strategies have generally proved to be more participatory and sustainable than most global, production-oriented schemes (Warren, Slikkerveer & Brokensha 1995).

In the light of such disappointing results of various imported agricultural systems, a comparison of global and local knowledge systems along with the various criteria of 'sustainability' has contributed to the changing attitudes and values towards indigenous peoples and their knowledge systems in a positive sense in many sectors of the human society (Jiggins 1989, Slikkerveer 1989, Warren 1989).

So, by the end of the 1970's, such reorientation towards IKS developed initially in the health care sector, where after the introduction of the concept of Primary Health Care (PHC) at the International Conference in Alma Ata (WHO 1978), the position of local healers and their traditional medical systems that are largely based on the use of medicinal plants, was not only recognised, but an entirely new strategy of integration was promoted. In the course of the 1980's, this process of reorientation was soon followed in the sectors of agriculture and the environment, where the knowledge and practice of local farmers and indigenous communities was revalued and re-integrated into various rural development strategies. A well-known combination of sustainable agricultural practices – initially inspired by indigenous knowledge systems of small farmers in South America – and environmentally sound methods has led to the development of agroecosystems that are now gradually replacing modern agriculture in many areas (Altieri 1987). Moreover, as Cashman 1989 rightly notes, the position in modern agriculture had become critical as more and more people were becoming dependent for their food needs on less and less – often vulnerable – hybrid plant and crop species, and a general movement developed towards the further diversification in agriculture.

LOCAL USE AND CONSERVATION OF WILD PLANTS

During the past decades, the concept of 'use' of agricultural and natural resources has often evoked a negative connotation of commercial, short-term exploitation, depletion and even ultimate extinction of certain sources; an opinion that was enhanced by the emerging 'food crisis' in agriculture in the developing world. With the recent interest in biodiversity management and conservation, particular attention is currently being paid to the concept of 'agrodiversity' as a means to extend agricultural development to the utilisation of resources in a more sustainable mode (UNCED 1992; Heywood 1995; FAO *Global Plan of Action* 1996). In the context of the current efforts to conserve the world's declining biodiversity on a global scale, the agricultural sector is among the major target areas where a combination is sought between *utilisation* and *maintenance* of agricultural and natural resources.

Various examples of the knowledge and practices of indigenous and traditional peoples in this field are currently being studied with a focus on the spiritual and cultural values of conservation of plants and animals into account (Posey in press). They are being documented, described and analysed with the ultimate objective to reintegrate such knowledge and wisdom – particularly 'Traditional Environmental Knowledge' (TEK) – into the process of biodiversity conservation and management.

For many scientists and extension experts, however, various dimensions of indigenous knowledge still remain 'invisible', 'complex', 'culture-based' phenomena which are hard to identify and to substantiate as tangible factors and variables in the current process of Research & Development. Moreover, such cultural phenomena have in the past often been presumed to be 'resistant to change'. Since Indigenous Knowledge Systems have been defined as specific systems of knowledge and practice, developed over generations in a particular field of anthropological study, and as such unique to a specific culture or community, they are sometimes referred to as systems of 'local knowledge', 'traditional knowledge', or even 'common-sense knowledge' that have mainly evolved outside – or in contrast with – Western-oriented, 'scientific' systems of knowledge and technology generated through universities, research institutes and industries. Passed down over many generations through the oral tradition, these systems are – in contrast with some Western stereotyping of the past – not just 'simple', 'static', 'old-fashioned' or even 'archaic', but rather dynamic with elements of both continuity and change, embedded in their adaptive capacity, selection mechanisms and appropriate use.

As a result of such bias, current efforts to integrate or *synthesise* 'global' and 'local' knowledge are still hampered by theoretical considerations of the elusive 'spirituality' of indigenous knowledge, while the practical inequality in the position of indigenous communities *vis-a-vis* Western societies calls for protection of resources, intellectual property rights and empowerment of indigenous peoples (Posey & Dutfield 1996; Agrawal 1996). However, despite gradual marginalisation, indigenous knowledge has continued to form the grass roots basis for local-level decision-making in sectors of the society such as human and animal health, agriculture and food production, natural resources management and fisheries. Particularly in subsistence agriculture, local knowledge and practice – including the use, management and conservation of predominantly wild plant and crop species for food and medicine – have been able to survive the influx of 'agribusiness' to witness today the above-mentioned reorientation towards their potential economic and environmental significance.

Consequently, the study of indigenous plant knowledge systems goes beyond classical ethnobotanical studies since they are conceived of as more dynamic systems of plant knowledge and practice that are interacting with such imported 'Western' systems in a particular anthropological field of study. As such, these studies are important for both the identification and operationalisation of alternative forms of use as well as the related conservation practices.

ETHNOBOTANICAL KNOWLEDGE SYSTEMS (EKS) AND MEDUSA

In a previous contribution, the relevance of IKS' Research for the MEDUSA Network was described that was based on the general IKS perspective of: a) a specific research methodology; b) the creation of a specific Information System for the Mediterranean Region; and c) the evaluation for conservation and sustainable utilisation of wild food and non-food plants as alternative crops by the local population within the context of the prevailing socio-culturally perceptions and practices (*cf.* Slikkerveer 1997).

From this perspective, a comparative study of Indigenous Botanical Knowledge Systems among different cultures in the Mediterranean Anthropological Field of Study was proposed to focus on various kinds of knowledge and use of local plant resources in order to meet the development goals of the region.

During the presentation of the various country profiles of the participating members of the Network at the Second Workshop, a certain attention to wild plant-related EKS transpired through different forms of plant knowledge and uses, but these 'additional' data were still documented in an unstructured mode (this volume). Interestingly, during the First MEDUSA Workshop at Chania, Greece, most country profiles had started to concentrate on the use of medicinal plants and herbal medicine, including Egypt, France, Greece, Morocco, Portugal, and Tunisia (cf. Heywood & Skoula 1997). For reasons of standardised documentation and analysis, and regional comparison, it seems advisable to construct a specific *Research Protocol* that is designed for the further study of the different forms of uses as referred to in the previous paragraph, with special attention for the underlying perceptions, experiences, wisdom and practices.

Since on the one hand, the different social uses are enjoying an important position in the MEDUSA objectives, and, on the other hand, biodiversity conservation has gained high priority on a global scale, such a structured study of related systems of local knowledge and practice must gain priority in future research activities within the member-countries of the Network. Moreover, such research focus would link up with the growing concern not only of the threat of loss of *biodiversity*, but also of the approaching loss of *cultural diversity* in terms of rapidly disappearing local and regional systems of plant-related knowledge and practice of local communities in the Mediterranean Region (Slikkerveer 1996).

If we take a closer look at the current position of indigenous knowledge in relation to the subject matter of MEDUSA Network in the Mediterranean Region, *i.e.* the identification, conservation and use of wild food and non-food plants, three major concepts come to play a significant role: bio-cultural diversity conservation, sustainable use and participatory research and development.

Firstly, we see that both indigenous knowledge and plant biodiversity have come under serious threat of extinction. While the conservation of biodiversity is today no longer questioned, thanks to the global commitment of international and national organisations, foundations, NGO's and research and training centres, and the collective concern of scholars and experts whose input and involvement in the work of MEDUSA is highly appreciated, an equal threat is still experienced in the loss of cultural diversity as reflected in indigenous knowledge concerning the management of animal and plants. The further understanding of the close relationship between biodiversity and cultural diversity – recently also incorporated in the *Global Biodiversity Strategy* (WRI/IUCN/UNEP 1992) as the 'inextricable link' between biological and cultural diversity – could strengthen the sustainable management and use and conservation of animals, plants as well as humankind's collective knowledge, perceptions and practices encapsulated in the concept of *bio-cultural diversity.*

Secondly, one of the dominant issues in the current international debate on Research & Development in the context of agriculture – and as such of great interest to MEDUSA – is the

concept of 'sustainability', introduced in the so-called 'Brundtland Report' (WCED 1987), and it seems appropriate to reconsider this important concept in the light of the Network's interest in the bio-cultural diversity of the Mediterranean Region. According to the Report 1987, the definition of 'sustainable agriculture' refers essentially to: 'successful management of resources for agriculture to satisfy changing human needs while maintaining or enhancing the quality of the environment and conserving natural resources.' If we make this definition more explicit, five criteria can be extracted from the definition that are crucial for our Network activities. The use and management of wild food and non-food plants in the Mediterranean Region could be considered 'sustainable' if they are: a) ecologically sound, b) economic viable, c) social just, d) humane, and e) adaptable.

Examination of these criteria in various forms of agricultural and natural resources use and management in different settings reveals a rather differentiated picture. If we look at the vast body of accumulating studies of indigenous knowledge systems concerning both wild and cultivated plants and crops in Sub-Saharan Africa, Asia and South America, the small-scale production systems largely based on the indigenous practices and methods do more or less comply to most of these five criteria of sustainability, i.e. much more than comparable large-scale agricultural systems, often referred to as 'agribusiness'. For instance, most of these local system prove ecologically sound as they comprise communally owned agricultural land cultivated and maintained for long-term use by several generations. This is in sharp contrast to the short-term ever-increasing production schemes that are based on often imported high-input technology. Equally, indigenous systems are producing mostly for self-sufficiency and local needs, and, as a result, participation in decision-making at the community levels are well assured (Warren, Slikkerveer & Brokensha 1995).

Equally, most of these systems prove economical viable for the communities involved, albeit largely for subsistence use and local and regional markets. It is also interesting to observe that most of these systems are reflected in a cosmology that is based on a general respect for all forms of life, as part of the well-balanced cultural relationship with nature. In many local communities, they are grounded in the values and beliefs that underlie their social system.

Finally, the adaptability of traditional systems has been well demonstrated by the local processes of selection and decision-making regarding the adoption/rejection of innovations that have pertained to the present pluralistic configurations in agriculture and natural resources management in the tropics and sub-tropics.

Thirdly, as H.E. the Minister suggested in his *Opening Address* to the Second Workshop (this volume), the assessment and promotion of the re-introduction of certain endangered plant species will indeed be viable *only* in the context of the full participation of local population groups and the respectful integration of their traditional knowledge, practise and wisdom. It demonstrates that the concept of participation has also become a key requirement for cooperation in research and development activities in this area of the Mediterranean.

With regard to the role of indigenous knowledge and practice concerning wild food and non-food plants of the Mediterranean Region, it is clear that without the participation and cooperation of the local communities, the documentation, study and analysis of peoples' knowledge, wisdom and practice, only a rather incomplete, etic – outsiders' – view of the complex configuration could be constructed. Given the negative consequences that many local communities have experienced from outsiders/intruders over the past centuries when it comes to their complex natural and spiritual resources, particular attention should be given to the protection of their resources and their intellectual property rights (Posey & Dutfield 1996). Such a participatory approach from the beginning onwards would not only provide the Programme with improved results, but also confer on the MEDUSA Network an exemplary position in the current international activities in wild plant use and conservation around the globe.

The documentation of such initially 'invisible' factors of spiritual and symbolic meaning and cosmology would link up with the strategy of IUCN/UNEP/WWF (1991) that recently included some of these dimensions in their publication on *Caring for the Earth: A Strategy for Sustainable Living.*

EXTENSION OF STANDARDISED RESEARCH DATA.

The proposed extension of the different categories of 'uses' of wild food and non-food plants of the Mediterranean Region, in conjunction with additional specific attention for bio-cultural diversity, sustainable use and participatory research and development in the Network's member countries would mean that – following the initial identification and documentation of existing information on wild food and non-food plants in the newly-developed MEDUSA-ISIS data base (Griffee 1997) – the participatory research efforts should also include as far as possible, different levels of information as to:

- *indigenous plant classifications and taxonomies* in the local language;
- related customary practices for sustainable use, management and conservation of diverse wild food, medicinal, aromatic and cosmetic plants;
- *the underlying perceptions, ideas and cosmologies referring to the perceived relationships* between the spiritual, natural and human worlds;
- the selection and experimentation of wild species and their relevant components;
- *the adaptations and changes concerning the harvesting and storage of wild plants;*
- conservation of vegetation for sacred ritual and ceremonial purposes;seasonal restriction on gathering of medicinal, aromatic and cosmetic plants;
- the interaction processes between local and global systems of plant knowledge and practice.

In order to achieve further standardisation of research data for regional comparative and analytical purposes, it could be considered to integrate these different information levels into the advanced database proposed by the MEDUSA steering committtee during the Second Regional Workshop of the MEDUSA Network.

The study of the category of underlying perceptions and cosmovisions of the different cultures in the Mediterranean Region is extremely important as it would not only foster the local use and possible exploitation of alternative plants which may be economically viable, but it could also learn us more about the related, alternative philosophies of nature and the environment that exist in the region. Since these local philosophies generally tend to be less commercial oriented, and more focused on the sustainable use of resources, they could provide a framework for the adaptation of currently dominant, western-oriented ideas and practices in order to eventually reach a more environment-friendly philosophy of nature for humankind on a global scale.

CONCLUSION

In order to further substantiate the objectives of the MEDUSA Network so as to extend the different categories of 'uses' of wild food and non-food plants of the Mediterranean Region in conjunction with additional attention for bio-cultural diversity conservation, sustainable use and participatory research and development in the member countries, the involvement of an Indigenous Knowledge Systems perspective is proposed that would not only strengthen the practical implications, but also contribute to the theoretical developments of the interdisciplinary 'socio-cultural botanical sciences'. 'Practical' in terms of providing viable alternatives to existing use and management of wild food and non-food plants in the

Mediterranean Region, and 'theoretical' in terms of contributing to the newly-developing field of Ethnobotanical Knowledge Systems (EKS).

To this end, an extension seems necessary of standardised research data to be collected in the region that would require a specific *IKS Research Protocol* to explore new avenues under an innovative research profile of MEDUSA. In such Protocol, special attention could be given to particular categories of wild plants that enjoy general interest throughout the Mediterranean Region, such as medicinal plants that are currently the focus of attention of various research activities in the member countries.

The next step, then, would be that we not only have to assess these local and regional systems of knowledge and practice with regard to wild food and non-food plants, but – as the Chairman indicated in his Welcome Address (Heywood, this volume) – we also have to validate and synthesise the different knowledge systems, and eventually include them into recommendations for policy planning and implementation for the benefit of all peoples and cultures of the Mediterranean Region, and beyond.

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