



Tropentag 2010
ETH Zurich, September 14 - 16, 2010

Conference on International Research on Food Security, Natural Resource
Management and Rural Development

Rural Communities' Exploitation from Surrounding Biodiversity in Khamin Protected Area: An Ethnobotanical Survey

Hashemi Schadegan, Fakhreddin^a, Korous Khoshbakht^b, Abdolmajid Mahdavi Damghani^b

a Graduate of agroecology, *Shahid Beheshti University, G.C, Environmental Sciences Research Institute, Iran*, Email schadegan@yahoo.com

b *Shahid Beheshti University, G.C, Environmental Sciences Research Institute, Iran*

Introduction

Far from being living museums, protected areas can present many benefits to local people, the nation and the entire world. The benefits are relatively clear to local people, as they have typically been harvested sustainably for hundreds - or even thousands - of years. Traditional agriculture can help conserve biological diversity and maintain healthy relationships between rural people and the land (McNeely, 1996). The different approaches have not consciously targeted and harnessed local communities' links with biodiversity (knowledge of and dependence on biodiversity) as a positive tool to help arrive at conserving local biological and cultural (biocultural) diversity while improving the well-being of these communities at the same time. . This contrasts with the strategy of preventing, disallowing and denying the use of biodiversity by people in order to "save biodiversity" adopted by some conservationists and developers. These relationships known through the different uses of biodiversity enable people to take stock of the need to have continued access to resources thereby making them find ways to maintain and keep the relationships going for as long as practicable (Quansah, 2004). Ethnobotany is the discipline concerned with the interactions between people and plants (Jones, 1941, cited in Hamilton et al, 2003).

Therefore, the objectives of this study were: 1) to study which plant species and families are utilized by local inhabitants, 2) to find out different utilization patterns of utilized plants by inhabitants, and 3) to present a descriptive hue of some noteworthy or under-domestication process species in Khamin protected area.

Material and Methods

Khamin mountainous protected area is located totally in Bashte Bavi district of Gachsaran county, Kohgiluyeh province, southwest of Iran. The annual average temperature and precipitation are 16°C and 650 mm, respectively. Some Lurish communities are outspreaded inward protected area, and traditional subsistence-oriented gardening, crop production and animal husbandry operations are widespread.

During April to September 2008, using a semi-structured questionnaire, some ethnobotanical interviews were carried out with 14 local key informants (10 male and 4 female) in Khamin protected area, as well as 3 groceries in nearby city, Gachsaran. They were asked to provide comprehensive information about wild plant species gathering by inhabitants in the area including their names, their utilizations and properties, and parts of utilization and ingredients. To verify the association between locales and plant types, the plants were grouped into six categories of use (food, medicinal, fuel wood, construction, instrument, and other utilizations (dyeing, etc.)) although some were in several categories. By collecting specimens and taking photographs of some uncertain species, and identification in herbarium of biodiversity of *Environmental Sciences Research Institute (ESRI), Shahid Beheshti University*, the study was more validated.

Results and discussion

Altogether 75 species belonging to 35 plant families were reported by natives, which were gathered from surrounding nature inward Khamin protected area for very diverse utilizations. From vegetation form perspective, magnitude of reported species (80%) belonged to shrub and perennial herbaceous vegetative forms by 48 and 32 percent, respectively. In addition to more naturally frequency of these species, this may be a demonstrator of diverse utilizations of these species and more contiguity to local inhabitants throughout the year. From another side, only 20% of utilized species were in forms of tree and annual herbaceous vegetation forms (11 and 9 percent, respectively). Some families were more frequent in the region based on their adaptation to climatic conditions and as a result were more utilized by residents. Families Umbelliferae, Compositae, and Rosaceae with 11, 7 and 7 species respectively, were the most utilized plant families. Based on different utilizations, plants were categorized in six categories, including

trophic (TRO), therapeutic (THR), fuel (FUE), construction (CON), tools (TOL), and other applications (OTH). The study revealed that overall, 43 plant species (57.3%), were utilized for trophic purposes, and 38 species (50.7%) were for therapeutic purposes, which was a demonstrator of mighty linkages and dependency of local people to surrounding natural phytosociety (Figure 1). The dominant hypothesis in ethnobotany states there are positive relationships between indigenous peoples' utilization from plants and their ethnobotanical knowledge (Reyes–Garcia et al, 2005).

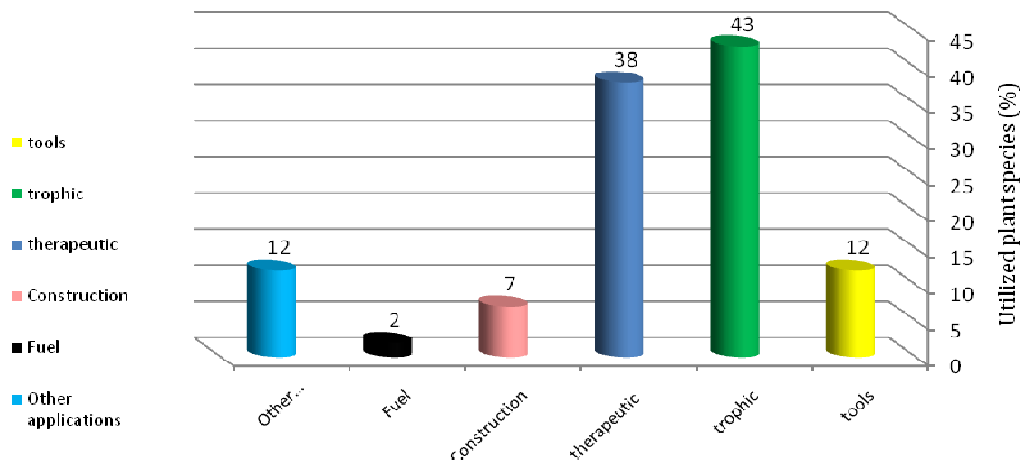


Figure 1. Utilizations of plants by local inhabitants.

Many species had diverse uses and many were utilized for construction (house, hovel, hedgerow, barn etc.) as well as for producing instruments for daily usages (containers, basket, farming tools etc.). However, only two species including *Quercus brantii* Lindl. and *Tamarix* sp. were reported to be used as fuel wood. Persian oak (*Quercus brantii* Lindl.) as dominant cover, was the most utilized plant species for local inhabitants, and villagers were very dependent on it. This species traditionally serves as a bounteous resource for Lurish communities alongside Zagros Mountains. For five of six predefined categories, *Quercus brantii* Lindl. was significantly uttered by locales as utilizable. As sensible in our field study as well as by deduction from informants statements, during last recent decades, relentless exploitation from these resources including inclement grazing, irregular utilization and sometimes illicit harvest resulted in gradually aback trends in the area.

Traditionally farming systems especially homegardens occasionally act as crucial sites for plant experimentation and domestication processes (Hawkes, 1983; Blanckaert et al, 2004).

Some species were conserved in rural farming systems and some such as *Pyrus syriaca* Boiss., wild varieties of *Ficus carica*, *Celtis caucasica* Willd., *Pistachia atlantica* Desf., and *Rhus coriaria* L., were at transition to domestication process in gardens and rural homegardens.

Conclusions and Outlook

More considerations should be paid on local communities in protected areas and their knowledge should to be more esteemed. Since the areas surrounding Zagros mountain range are one of the most important and first locations for both appearance of agriculture and plant domestication (Harlan, 1992; Koochaki and Khajeh-Hosseini, 2008), more researches will be eventually profitable. By providing relevant information and advice, scientific knowledge supports policy-makers and society in implementing strategies that address conservation of biodiversity, on-farm.

References

- Blanckaert, I., R.L. Swennen, M.P. Flores, R.R. Lopez, and R.L. Saade** (2004). Floristic composition, plant uses and management practices in homegardens of San Rafael Coxcatlan, Valley of Tehuacan-Cuicatlan, Mexico. *Jour Arid Envir*, 57:39- 62.
- Hamilton, A.C., P. Shengji, J. Kessy, A.A. Khan, S. Lagos-Witte and Z.K. Shinwari** (2003). The purposes and teaching of Applied Ethnobotany. People and Plants Working Paper 11. WWF, Godalming, UK.
- Harlan, J.R.** (1992). *Crops and Man*. The American society of Agronomy, Madison, USA.
- Hawkes, J.G.,** (1983). *The Diversity of Crop Plants*. Harvard University Press, Cambridge, MA, 184pp.
- Jones, V.,** (1941). The nature and scope of ethnobotany. *Chronica Botanica*, 6: 219-221.
- Koochaki, A.R., and M. Khajeh Hosseini** (2008). *Modern Agronomy*. Jahade Daneshgahi publications, Mashhad, Iran. 704pp.
- McNeely, J.A.,** (1996). The role of protected areas for conservation and sustainable use of plant genetic resources for food and agriculture. (IUCN Gland (Switzerland)) DSE/ATSAF/IPGRI Workshop In situ Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture in Developing Countries, Bonn (Germany), 2-4 May 1995.
- Quansah, N.,** (2004). The neglected key to successful biodiversity conservation and appropriate development: local traditional knowledge. *Ethnobotany research and applications*, 2:89-91.
- Reyes-Garcia, V., Vadez, V., Byron, E., Apaza, L., Leonard, W., Perez, E., and D. Wilkie** (2005). Market economy and the loss of ethnobotanical knowledge: Estimates from Tsimane' Amerindians, Bolivia. *Current Anthropology* 46:651–656.