Forest Ecology and Management 257 (2009) 2066–2072

Contents lists available at ScienceDirect

Forest Ecology and Management

journal homepage: www.elsevier.com/locate/foreco

Ethnomedicinal knowledge and healthcare practices among the Tharus of Nawalparasi district in central Nepal

Kalpana Ghimire [a,*], Rishi Ram Bastakoti [b]

[a] District Road Support Programme, P.O. Box 113, Kathmandu, Nepal
[b] Resource Identification and Management Society, Nepal

ARTICLE INFO

Article history:
Received 31 July 2008
Received in revised form 5 January 2009
Accepted 24 January 2009

Keywords:
Health care
Medicinal plant
Nepal
Tharus
Traditional knowledge

ABSTRACT

Documentation of ethnomedicinal use of plants has been considered a high priority to support the discovery of new drugs to benefit mankind. This paper deals with the field observations recorded on the use of medicinal plants in traditional health care systems of the Tharus of three Villages of Nawalparasi district of central Nepal. The Tharus are isolated forest dwellers who have lived harmoniously with nature over the centuries and accumulated a vast knowledge of plant use to cure various ailments. First-hand information on the ethnomedicinal uses of 110 plants species belonging to 52 families were documented from the study. These plant species are used by the Tharus to treat ailments ranging from fever and headache to cough and cold, rheumatic pain and fracture to urinary tract infection and menstrual disorders. The scientific names of these plants are presented in tabular format according to alphabetic order, family, parts used, medicine preparation process and use and method of application. Increasing accessibility of modern health care facilities, low recognition of traditional healers and decreasing interest amongst the young generation has resulted in declining trends in the use of traditional medicine among the Tharus. Thus, the documentation of such knowledge is an important step for preservation of traditional knowledge, conservation and management of valuable plant resources and commercialization of ethnomedicines.

1. Introduction

Traditional medicine has maintained its popularity in many regions of the developing world and its use is rapidly spreading in industrialized countries. According to the World Health Organization approximately 80% of people globally rely on traditional medicine and healing practice for primary health care. In Asia, about 6500 species of plants are used as home-based remedies (Karki and Williams, 1999) whereas 1000 species are used in Nepal for traditional medicinal purposes (Chaudhary, 1998). There are substantial market forces in herbal remedies that value traditional healing and medicinal plants. As such, ethnomedicine is an emerging enterprise closely related to the survival of human beings (Pikun, 2000).

Ethnic communities, particularly forest dwellers who are the primary inhabitants of natural ecosystems, have significant customary knowledge of biotic resources and their various applications (Hamil et al., 2000; Uniyal et al., 2006). The interdependency between indigenous communities and biological resources and their understanding of how to manage medicinal plant resources is gaining recognition worldwide. The Nepal Biodiversity Strategy has highlighted the urgent need for documentation of indigenous knowledge through proper research which has a great potential for the conservation of Himalayan biodiversity (NBS, 2002). Understanding local peoples' indigenous knowledge in relation to biodiversity/resource management is a pressing issue for sustainable development (Kunwar and Duwadee, 2003) particularly in light of the loss of such know-how in recent years. Unless this knowledge on the use of plant resource is documented, there is a real danger of losing it forever (Manandhar, 2002).

The Tharus are isolated forest dwellers who have lived harmoniously with their natural surroundings for centuries, and have accumulated a vast knowledge on the use of plants to cure various ailments. Nevertheless, this knowledge is scattered, communicated orally and confined to certain key village members. Though some limited studies have been conducted in the Tharu communities of Dang-Deukhuri (Manandhar, 1985; Acharya, 1996), Chitwan (Dangol and Gurung, 1991; Mueller-Boeker, 1999), and Nawalparasi (Ghimire, 2000) districts, these studies do not fully describe the wide range of localized cultural practices. Therefore, the present study was conducted to investigate and document ethnomedicinal knowledge and traditional health care

* Corresponding author.
E-mail addresses: kalpanaghimire@hotmail.com (K. Ghimire), rishibastakoti@hotmail.com (R.R. Bastakoti).

0378-1127/$ – see front matter © 2009 Elsevier B.V. All rights reserved.
doi:10.1016/j.foreco.2009.01.039

practices of the Tharus of three villages of Nawalparasi district that have been accumulated for centuries.

The Tharus are a culturally and linguistically diverse ethnic group that lives along the Indo-Nepal border in the region known as Terai. Once semi-nomadic, the Tharus are believed to be the first people to occupy the Terai (Meyer and Deuel, 1998) and have inhabited these plains for over 600 years, gradually becoming cultivators of the alluvial and fertile plain in the southern part of the country. Over the last 200 years, they have transformed the region into prime agricultural land. Over time, the Tharus have developed a remarkable resistance to the deadly malaria which prevented other people from settling in this region until widespread use of DDT eliminated the malaria disease vectors in the 1960s. Lived in isolation over centuries enabled the Tharus to develop a unique culture and tradition (Bista, 2004). Since the eradication of malaria in the 1960s, the Terai has become densely populated with immigrants from the higher elevations. In spite of their increasing interaction with other groups, the Tharus have been able to maintain their ethnic identity and socio-cultural practices (Mueller-Boeker, 1999).

The art of healing with medicinal plants has been practiced by the Tharus for centuries. The health care practices of the Tharus are deeply rooted, and rely on traditional healers known as *Gurau* who perform ancient rites of protection, blessing and healing. They also function as a medium between the supernatural and the natural worlds (Chaudhary, 2001). The Tharus do not have any scientific explanation for many natural phenomena which they attribute to the action of gods, spirits and ghosts. They appease and exorcise these spirits through *Jharphuk*—offering *mantra* and through other rituals. *Garau* are believed to have magical and spiritual powers which enable them to detect illness by reading the patient's radial pulse. Health problems are diagnosed by visual inspection and interviews with the patient to determine changes in eye and skin color, tongue condition, body temperature and other symptoms, as well as the duration of the health problem. This knowledge is been passed orally from one generation to the next without any written records being maintained.

2. Methodology

The study was conducted in three Village Development Committees (Parsauni, Pithauli and Mukundapur) of Nawalparasi district in 1999 and 2007. These Village Development Committees are situated in the flood plain of the Narayani river in the vicinity of the Chitwan National Park, a UNESCO-designated World Heritage Site. The villages are culturally mixed but dominated by the Tharus who have a close cultural affinity with nature in their daily life.

The tools and techniques used for data collection in the field included semi-structured interviews with key informants, participant observations, plant specimen collection and focus group discussions. A preliminary survey was carried out through field visit with the help of local people before the selection of informants. Before initiating data collection, we established rapport and trust with the villagers/informants by participating in informal discussions and village activities. A total of 45 informants were selected based on information obtained during the preliminary survey. These included 20 traditional healers and 25 villagers—men and women, elders and youth. Prior consent for our documentation of information provided by informants was obtained verbally from each respondent before interviews was undertaken.

Two interview approaches were used for collecting information. The first approach was an inventory interview, in which forest transect walks were undertaken with the local healers and villagers for the purpose of collecting plant specimens and detailed information on these plants. The second approach used was the specimen display method. After field collection, the plant specimens were shown to the traditional healers in order to elicit information on the plants' therapeutic properties and uses. The same plant specimens were shown to different healers to confirm the accuracy of the information recorded on these plants. Family members of the respondents were also encouraged to participate in the interview process. Cross-questioning and triangulation were done in order to evaluate the consistency of information obtained from the informants. In addition, a brief verification meeting was organized among the *Gurau* of Parsauni village to validate the information obtained from individual interviews. Participant observation methods were used throughout the field research in order to record their actual practices.

The collected plant specimens were identified by researchers with the help of experts and standard literature references (Grierson and Long, 1983–1994; Hooker, 1875–1897). The specimens were reconfirmed by comparing them with identified specimens deposited at National Herbarium, Godavari, Nepal (KATH). The species nomenclature used in this study conforms with that of Hara et al. (1978, 1982), Hara and Williams (1979) and Press et al. (2000).

3. Results and discussion

Since time immemorial, the Tharus of Nawalparasi have relied on traditional healthcare practices to treat the various conditions and ailments that affect them. In this study, the ethnomedicinal uses of a total of 110 plant species belonging to 52 families used by the Tharus were recorded (Table 1). These plant species are used to treat about 50 ailments and involve 232 different remedies. Among these 110 species, 41 are trees, 40 are herbs, 17 are shrubs and 11 are climbers. Most species (86) are collected from the wild, 21 are cultivated and 3 (*Santalum album, Dactylorhiza hatagirea* and *Rhododendron arboretum*) are imported from middle hills and high mountains of Nepal. The family Leguminosae is represented by highest number of species (9) followed by Moraceae (7), Cucurbitaceae (6), Apocynaceae (5), Labiatae and Euphorbiaceae (4 each). A comparison of the medicinal plants used by the Tharus of the areas studied with those reported in an earlier study carried out in Dang, Chitwan and Nawalparasi districts show generally similar results, although some of the plant drug recipes and medicinal application processes were different (Manandhar, 1985; Mueller-Boeker, 1999; Ghimire, 2000).

Considering different disease categories, we found that 53 remedies are used to treat gastro-intestinal problems (dysentery, diarrhea, gastric, abdominal pain, abdominal disorder, indigestion, constipation and peptic ulcer); 39 are used to cure dermatological problems (scabies, boils, burns, mumps, swelling, chapped skin and other skin disease); 26 are used for respiratory tract infections (asthma, bronchitis, cough/cold, sinusitis and sore-throat), 24 are used for skeletal-muscular problems (rheumatic pain, sprain, fracture, dislocation and backache); and 10 remedies are used to cure problems of the reproductive and urinary systems (urinary tract infection, gonorrhea and menstrual disorder). Lesser numbers of remedies are used to manage ophthalmic, dental, ear, nose, throat and cardio-vascular conditions. Most of the plants (86 out of 110 species recorded) are used to treat more than one ailment and some plants were reportedly used as tonics.

Plants used in traditional remedies are prepared and administered in different forms, typically as pastes, decoctions, powders, or crushed and mixed in water. The administration of these medicines includes oral absorption, poultice application, inhalation, or other means. Most remedies used for gastrointestinal problems are taken internally while those for dermatological problems are applied externally. Doses are estimated using a