

Knowing our Lands and Resources

Indigenous and Local Knowledge and Practices
related to Biodiversity and Ecosystem Services in Asia



16. Indigenous and local knowledge of conservation and sustainable use of Himalayan Giant Nettle (*Girardinia diversifolia* (Link) Friis) in Eastern and Far-Western Regions of Nepal

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Abstract

Indigenous knowledge and practices of indigenous peoples and local communities (IPLCs) play an important role in the conservation and sustainable use of biodiversity. Himalayan giant nettle (*Girardinia diversifolia* (Link) Friis), locally known as 'allo', has economic and cultural values for IPLCs living in the Kailash Sacred Landscape (KSL-Nepal) (comprising Humla, Darchula, Baitadi, Bajhang Districts) of Far-Western Nepal; and Makalu Barun National Park (comprising Shankhuwasabha and Solukhumbu Districts) of Eastern Nepal. This research discusses indigenous and local knowledge of the traditional use and practice of 'allo' linked with the sustainability of resources. The study investigated the cultural linkage among 'allo' harvesting and processing techniques, traditional medicinal practice as well as conservation practice adopted on 'allo' by IPLCs of Far-Western and Eastern regions of Nepal. Different parts of the 'allo' plant species are traditionally being used by local healers (Vaidhya) and local communities such as Bohora, Dhimi, Thagunna of Darchula District use 'allo' as medicine for treating gastritis, joint pain, headache, tuberculosis and asthma. The Kulung Rai people of Sankhuwasabha district use clothes made of 'allo' fibre in their rituals. The study revealed that IPLCs use the fibre of 'allo' as primary material to make ropes, fishing nets, coats, pants, bags, shawls, purses and many more items to sustain their livelihoods. The traditional harvesting techniques; use of locally available materials such as wood ash, white soil; and locally made equipment like hand spindle, wooden hammer, wooden handloom help in sustainable use and conservation of 'allo'. Increasing market demand had led to a higher supply of 'allo' products, hence, people started to harvest it extensively. The natural resource 'allo' has been declining due to high habitat competition with cash crops like *Amomum subulatum*. Therefore, this study identifies the existing status of 'allo' for management and sustainable utilisation to meet the increasing demand for resources, and attempts to share the management practices followed in two different regions of Nepal.

16.1. Introduction

Himalaya giant nettle (*Girardinia diversifolia* (Link) Friis) locally known as 'allo', has economic and cultural values for indigenous peoples and local communities (IPLCs) living in the Kailash Sacred Landscape (KSL-Nepal), which comprises four districts in Far-Western Nepal - Darchula, Baitadi, Bajhang and Humla Districts (Zomer and Oli 2011); and in Sankhuwasabha District of Eastern Himalaya in Nepal. *G. diversifolia* belongs to family Urticaceae. It is a fibre-yielding plant locally known as 'allo' in Nepali language. 'Allo' grows in the Eastern to Far-Western regions of Nepal between the altitudes of 1,200 to 3,000 metres a.s.l. Its range also extends to China, India, Bhutan, and East Africa including Madagascar (Friis 1981; Shrestha and Hoshion 1998; Chen et al. 2003). The plant is shade loving, grows to 1.5 to 3 metres tall and has a perennial root. Stem and leaves consist of stinging spikes. Fibre is present in the inner bark of the stalk and has high strength and length. Allo has cultural, economic and medicinal values for many communities like Rais, Gurungs, Tamangs, Sherpas, etc. Indigenous peoples and local communities utilise the fibre of this plant to make different articles for daily use. Kulung Rais use cloth made of 'allo' in their religious ceremonies, offer cloth to God during Nagi Puja and also present 'allo' cloth to their daughters during the wedding ceremony (Barakoti and Shrestha 2008). Different parts of the plant species are traditionally utilised as medicine. 'Allo' products have both national and international market value. Resources management, sustainable harvesting, conservation, and fair and equitable sharing of benefits enhance equity among the communities. The harvesting and processing system of 'allo' followed by the people of Bala, Sisuwa, Tamku (Village Development Committee) VDCs of Sankhuwasabha district and medicinal use of different parts of 'allo' followed by communities at Khar, Katae, Yerkot, Sipti VDCs of Darchula district living in KSL-Nepal are important for the sustainability of the resources.



Photo 16.1 Local people harvesting 'allo'

This research, combining cultural and economic values, investigated the indigenous knowledge on uses and practices linked with the sustainability of resources. The study investigated how local communities have established cultural linkages with harvesting practice, processing techniques and medicinal use of 'allo' in different regions.

16.2. Study area

The study sites Khar, Airkot, Katae, Septi, Sitola VDCs of Darchula District, Api-Nampa Conservation Area, Kailash Sacred landscape (KSL), Nepal are located in the Far-Western region; Bala, Sisuwa, Tamku VDCs of Sankhuwasabha District in Makalu-Barun National Park are in the Eastern region of Nepal (Figure 16.1).



Figure 16.1 Study area with KSL-Nepal in Far-Western region and Sankhuwasabha District in Eastern region of Nepal.

16.3. Materials and Methods

A field survey was conducted in the study areas following focussed group discussions, informal meetings and field observations as primary methods of data collection. Semi-structured questionnaires were followed after establishing informed consent with the communities. Information was also collected from websites and published articles in journals. Non-timber forest product (NTFPs) collectors, traders, traditional healers (Vaidhya), 'allo' processers and community members were consulted through focussed group discussions and informal meetings. Elderly people, forest guards, local traders, men and women representing different ethnic groups, castes and occupations were encouraged to participate.

16.4. Results and Discussions

16.4.1. Cultural use and practice

Indigenous and local communities like Rais, Gurungs, Sherpas, Magars and Tamangs value *G. diversifolia* economically and culturally. A particular community of Rai (Kulung Rai) peoples offer 'allo' cloth to god during the cultural ceremony of Nagi Puja. 'Allo' and its cloth are the most important requirements during housewarming, wedding and funeral ceremonies. It is also the source of livestock feed, bedding material and firewood (Barakoti 2008). The traditional fibre extraction technology developed by IPLCs helped them to meet the basic requirement of the people by selling their products in local markets.

16.4.2. Traditional medicinal use and practice

The present study revealed that 'allo' is a medicinal plant and has been used by the local communities in Far-Western and Eastern regions of Nepal. Local people use 'allo' as medicine for treating gastritis, joint pain, headache, tuberculosis and asthma (Table 16.1).

Table 16.1 Traditional use of *G. diversifolia*

Parts used	Traditional use
Root	Juice of roots is used to treat gastritis and constipation and is applied on swellings. Paste of the root is applied on aching joints. Root juice with water is used for stomach ache. For the treatment of gastritis, it is mixed with the plant Ghodtapre (<i>Centella asiatica</i>) and boiled for 10 minutes, strained and the liquid (about 4 teaspoons) is given twice a day. Juice of the root, about 6 teaspoons twice a day, is given for constipation (Manandhar 2002).
Bark	Fibre obtained from the bark is used to make different articles such as ropes, fishing nets, bags, sacks, clothing materials, weaving rugs, jackets (Barakoti 2008).
Leaf	Juice of leaves is used to treat headache, joint aches and tuberculosis. It is also used as a vegetable (Barakoti 2008; Gurung et al. 2012; Malla et al. 2014).
Stem	The stem is heated and wrapped around the leg or hand to treat fractures.
Inflorescence	It is used as a vegetable and soup for its high nutrient value (Malla et al. 2014).

The study revealed that IPLCs of Eastern and Far-Western regions of Nepal use 60% bark, leaves 15%, roots 10%, Stem 8%, Seeds 4%, and inflorescence 3% of 'allo' (Figure 16.2).

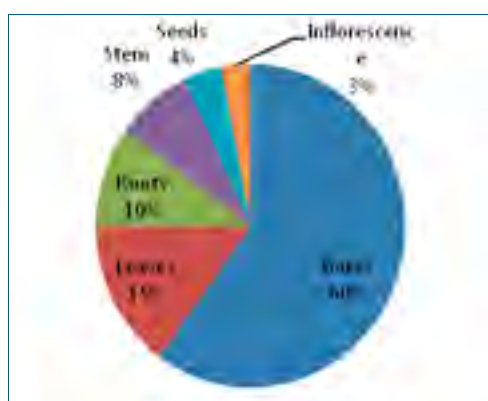


Figure 16.2 Percentage of plant parts use by IPLCs

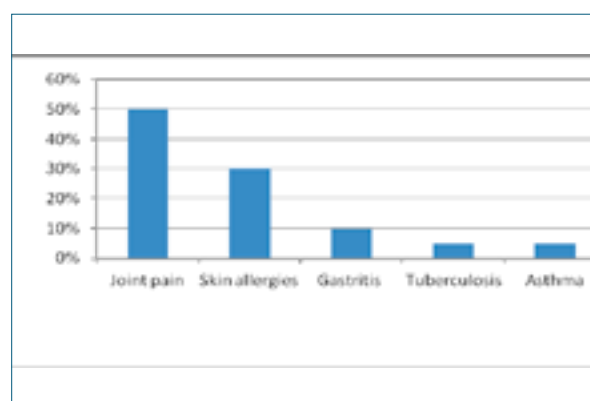


Figure 16.3 Percentage therapeutic use of *G. diversifolia*

The study also showed that more than 50% of people use 'allo' for joint pain; 30% in skin allergies; 10% to treat gastritis followed by tuberculosis and asthma (Figure 16.3).

16.4.3. Indigenous knowledge of allo processing held by IPLCs of study area

During October-November, local communities harvest the 'allo' shrubs. Well-developed stems are selected and the bark is removed manually by using iron sickles and hand gloves. The harvested bark is soaked in water for 24 hours.



Photo 16.2 Allo processing techniques in Far-Western and Eastern Region of Nepal:

- (a) Cooking of 'allo' bark in iron drum.
- (b) Allo bark drying with white clay (Kamero).
- (c) Wooden hammer (Mungro).
- (d) Spinning 'allo' fibre with Katuwa.

Degummed barks are dried, bundled and stored. The cooking process takes place for about 2-3 hours in an iron drum with wood ash. To cook 2.5 kg of 'allo', 5.38 kg of wood ash is needed to remove non-fibrous 'allo' bark and 7.45 kg of white soil (Kamero) is needed to soften the 'allo' fibre.



Photo 16.3 Allo cloth weaving with wooden hand loom.

Wooden hammer (Mungro) is still in use – it is a traditional method of processing of fibre. Plenty of water is required to remove the non-fibrous bark and this is usually carried out in a stream or river. The beating process is the primary traditional method for the removal of debris of 'allo' bark in both Eastern and Far-Western regions of Nepal. The clean bundles of fibre are left to dry in the sun and soaked in water with locally available white soil.

Both men and women are involved in all the stages of collection and processing. The traditional spinning method by hand spindle is still practised. Hand spindle (Katuwa) and wooden spinning machine (Charka) are used for spinning of the yarn. A hand spindle is a portable yarn spinning equipment which is used to spin fibre. The study revealed that IPLCs of Eastern and Far-Western regions use fibre of 'allo' as the primary source to prepare different types of products such as porter straps (Namlo), ropes for domesticated animals (Damlo), coats, pants, bags, shawls, purses and many more items. IPLCs have made their own groups and rules for harvesting of 'allo' from the forest. People go together to the forest and collect 'allo' bark from the mature plant, after the ripening of fruit during the months of October and November. They allow the ripened seeds to disperse around the ground for the regeneration of plants. They collect 'allo' bark in groups from different forest areas and share the resources in equal amounts. While harvesting 'allo' stem, they leave about four inches of stem above the ground so that new buds may arise easily from the root. Mostly women were involved in 'allo' processing, thus it acts as a source of income for the women, and they utilise the income generated from 'allo' for their daily use and also for the welfare of their children.

16.4.4. Loss of natural habitat

G. diversifolia generally grows from Eastern to Far-Western regions of Nepal between the altitudes of 1,000 to 3,000 m above sea level. It commonly grows in moist and shady areas. During the study, most of the respondents reported that natural habitat of 'allo' is decreasing year by year. This may be due to decrease in the traditional livestock domestication practices in barren lands which acts as one of the major sources of organic fertiliser for 'allo' germination and growth. Studies showed the community response on the present situation of natural habitat: 85% responded that they had observed a loss or decrease of natural habitat; 13% responded that there was increase in natural habitat; only 2% responded that they observed no change in the natural habitat (Figure 16.4).

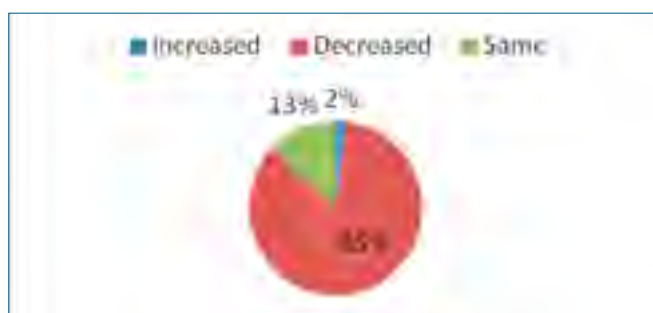


Figure 16.4 Community response on change in natural habitat of 'allo'

About 38% of the respondents reported that the loss of natural habitat of 'allo' was due to decrease of livestock domestication practices on barren land; 32% responded that the loss of habitat was due to decrease of sheep numbers and sheep herders, because sheep excreta acts as a good source of fertiliser for 'allo' plants. 'Allo' seeds also anchor on sheep wool which helps in seed dispersal in forest areas and barren lands. About 13% responded that the loss of 'allo' habitat was due to the increase in cardamom cultivation in the same lands where 'allo' grows; 8% responded that this was due to plucking out of whole plant to support fodder grass regeneration for domesticated animals; about 7% responded that there was no effect on the natural habitat and about 2% reported that the reason for loss of habitat was destruction by wild animals (Figure 16.5).

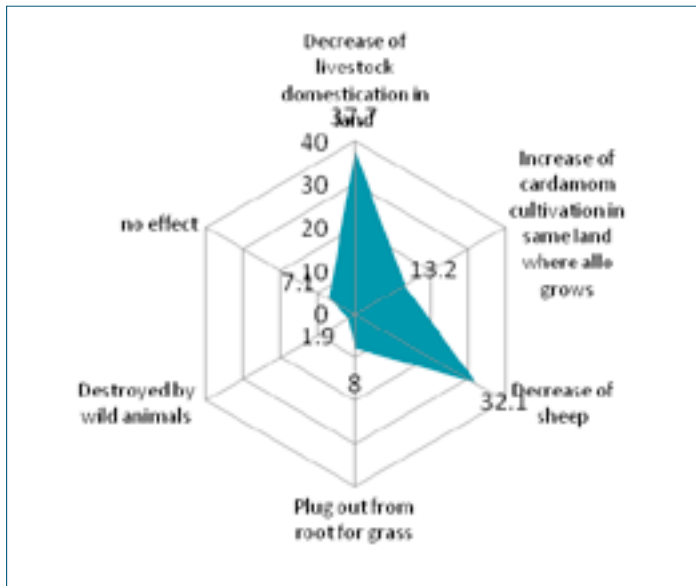


Figure 16.5 Causes of decrease of natural habitat of 'allo'.

Collection, processing, spinning and weaving of *G. diversifolia* is a tradition of IPLCs, and has long been used in the textile history of Nepal. Jackets, coat and, caps made of 'allo' are popular in Nepal and abroad. The IPLCs have their own traditional practice of collection, processing, spinning and weaving, where they utilise locally available materials. These days, the traditional processing practices are altered by the use of caustic soda in place of ash. Though caustic soda removes non-fibrous parts faster than the ash, it pollutes water, affects fibre quality and health of 'allo' farmers. So, the indigenous and local knowledge adopted by Kulung Rais of Sankhuwasaha, Dhimi and Thangunna communities of Darchula district is environmentally safe. Generations upon generations of people are harvesting 'allo' from the forest though very few people are aware of the availability and sustainability of raw material in the natural habitat. People have to travel long distances and spend a week in the forest to collect 'allo' bark. Another risk is the massive plantation of large cardamom *Amomum subulatum*: people pluck out 'allo' plants and plant large cardamom in their place. Cultivation of *A. subulatum* has been one of the income generation options which has had adverse impacts on the habitat of *G. diversifolia*. So, on the one hand exploitation rate of 'allo' is high and on the other, destruction of natural habitat indicates the need for sustainable management. Thus, plantation, cultivation and conservation should be encouraged to preserve the natural habitat. Tax policy on transport of raw 'allo' bark and finished products from villages to national and international markets is unclear. Farmers/collectors have to pay taxes at several points while carrying both 'allo' bark as well as its products. Therefore, it is recommended that the Government provides a clear policy of one-door taxation for raw material and finished products.

Conclusions

Indigenous and local communities of Nepal have their own traditional way of harvesting, processing and conservation of *G. diversifolia*, which has cultural, economic and medicinal value among the people living in Api-Nampa Conservation Area of Kailash Sacred landscape, in Far-Western Nepal and Makulu-Barun National Park in Eastern Nepal. Economic importance has led to higher demand of 'allo' products. Hence, the residents of Darchula and Sankhuwasabha districts have started to harvest it extensively. The study emphasises the importance of sustainable harvesting, conservation of natural resources, preservation of the traditional knowledge and formulation one door taxation policy on the use of *G. diversifolia*.

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