

Biological geographical indicators of traditional knowledge based products and green technology from Arunachal Pradesh: An initiative for safeguarding IPR of communities

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The paper demonstrates the observations of an initiative taken during 2003-2008 in Arunachal Pradesh about the work on Geographical Indication (GI) with reference to the traditional knowledge and plant based products/practices and green technologies. These studies suggest that there are total 12 GI important products and green technologies which are made/ prepared from the indigenous plants. These products and technologies were recorded from *Adi* and *Monpa* communities of East Siang and West Siang districts of Arunachal Pradesh. Each product/green technology is belonging to community knowledge domain. These GI important practices/products/green technologies were submitted to the Government of India for their inclusion in main GI database and further processing to ensure community collective rights and IPR on the reported products and green technology.

Keywords: Geographical indications, Traditional knowledge, Plant biodiversity, Tribal communities, Arunachal Pradesh

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Geographical Indications (GI), the term covered by the intellectual property rights definition, is thought of generally in terms of the products they are associated with^{1,2}. Geographical Indications is meant to embody the widest possible coverage of this sort of intellectual property. It differs from trademark because it is not associated with a single company's products^{1,2}. In recent past, the meaning and value of GI has significantly increased in India in the cases of Traditional Knowledge Systems (TKS) and related biodiversity. Now, after *Neem* and *Basmati* rice episodes, the government is giving much attention to incorporate GI in every plant based product and technology². The objective is to secure the IPR and ensure the equitable benefit sharing with a particular region/community and related community/state^{2,3}. Though, there has been less contribution of GI in the field of Traditional Knowledge (TK) and related biodiversity despite the TK being used in number of goods and products across the region and communities in India. The arising need and increased level of awareness towards GI, the Government of India has started notifying countrywide to the

concerned institutions for inviting the name of plant based products, which are very novel and specific in nature to a particular geography and climate. The objective is to secure the novelty in IPR through registering the GI of a particular product.

Though, India as a country is very diverse from communities and ecosystems wise, however the Northeast region of country is well known for its diverse incredible biocultural diversity. The Northeastern (NE) region of India in particular is considered one of the most bioculturally diverse regions of India⁴. Diverse communities, traditional agriculture, governance of natural resources through indigenous institutions, a high degree of forest dependency, and the use of ethnic foods and medicines have resulted in a rich heritage of culturally-embedded TK. This has the potential not only to protect biodiversity and ecological functioning, but also to sustain the cultural diversity⁴. The unique tribes and biodiversity have been the basic features to make the part novel from biocultural diversity point of view. Indigenous biodiversity is used in almost every aspect of life and livelihood support systems. This opportunity and ethnicity to

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interact with ecosystem and floral resources, Traditional Knowledge holders (as individual) and community (as group) have developed certain grassroots plant based products and green innovations/ outstanding TK which got special identity for the GI systems⁴. This could be a great

resource for the communities and the government in the modern era of IPR and world trade. Looking to the importance of GI in protection of TK and ensuring the related benefits in the name of community, a project was initiated in 2003 (continued till 2008) in various parts of East Siang and West Siang districts

Table 1-TK and plant based products/practices and green technology submitted to Government of India for ensuing them in Geographical Indication (GI) systems

Practices/products	Geographical location	Community concerned	Uniqueness/usage	Type of knowledge
<i>Yarchegomba</i> (<i>Cordyceps sinensis</i>) (Fig. 1)	Bumla Pass and Bhutan Border (altitude more than 15,000' msl)	<i>Monpa</i> community of Dirang (West Kameng district) and Tawang district	Used in stomach disorders, jaundice, and for increasing human fertility	Community knowledge (ethnomedicine)
<i>Eting</i> (Fig. 2)	<i>Amkel</i> variety of rice locally found in the hills of East Siang district (from 150-200 m msl)	<i>Adi</i> community of East Siang district	Processed bread made from powder of local variety of rice and stored in <i>ekkam</i> leaf (<i>Phyrrinum pubinerve</i>). Process is important and can be kept for over 3 days in summer and 7 days in winter	Community knowledge (traditional food)
Bamboo shoots fermentation	Method is very local in East Siang, and Upper Siang districts	<i>Adi</i> community of East Siang district	Shoots are fermented in bamboo cylinder and processed in water stream for about one year to reduce the cyanogenic glycoside taxiphylin percentage of product	Community knowledge (traditional food)
<i>Gale</i> (Fig. 4) and <i>Galuk</i>	East Siang, Upper Siang and West Siang districts	<i>Adi</i> community of East Siang district	A traditional dress made of locally produced cotton and use of wild banana leaf (wax of backside of leaf in softening the thread) to make it more soft and free from any skin allergy	Community knowledge (cottage product)
<i>Onger</i> (<i>Zanthoxylum limonella</i>) (Fig. 3)	East Siang district (150-200 m msl)	<i>Adi</i> community of East Siang district	The green leaves are used as vegetable and added with pork and other leafy vegetables. It acts as anti-helminthetic. It is most important biopesticides to control insect problem in paddy crop	Community knowledge (traditional food, ethnomedicine and green technology)
<i>Mirangmose</i> (<i>Gymnocladus assamicus</i>)	Restricted to Dirang area (5,000-6,000' msl.) and critically endangered tree species	<i>Monpa</i> community of Dirang (West Kameng district)	Used as soap, shampoo, treatment of skin disorders (antifungal & antibacterial); leaves are used as biopesticide in vegetable crops	Community knowledge (ethnomedicine and green technology)
<i>Dikang</i> pods (<i>Gymnocladus burmanucs</i>)	Locally found in the hills of East Siang district (from 250-300' msl)	<i>Adi</i> community of East Siang district	Used as soap, shampoo (antifungal & antibacterial) and trapping the wild deer for hunting. Bioculturally important for the <i>Adi</i> hunters	Community knowledge (ethnomedicine and green technology)
<i>Tasat</i> (<i>Arenga obtusifolia</i>) (Fig. 5)	Locally found in the hills of East Siang and upper Siang districts (from 250-300' msl)	<i>Adi</i> community	Bread like food is prepared from the inner part of epidermic layer and used in drought. Traditional beer is one of the tastiest products made from it. Stem is given to pigs for rapid gain in body weight	Community knowledge (traditional food)
Mandarin orange	Hills of East Siang district (150-170 m)	<i>Adi</i> community of East Siang district	The taste, flavour and quality are achieved mainly due to prevailing climatic conditions	Community knowledge (food)
<i>Amkel</i> variety of rice (Fig. 6)	In all the jhum fields of East Siang, Upper Siang and West Siang districts (150-300 m msl)	<i>Adi</i> community	Distinct traditional alcoholic beverages are made which can be given to various age groups. Residues are used in reducing the tiredness during heavy physical work.	Community knowledge (traditional food and beverage)
<i>Toko-patta</i> made houses (<i>Livistonia jenkinsiana</i>)	East Siang district (150-200 m msl.)	<i>Adi</i> and <i>Nysing</i> communities	Conservation of this species is ensured by <i>Adi</i> community for making eco-friendly houses	Community knowledge (green technology)

of Arunachal Pradesh to record novel TK and plant based products, which have special values in GI and IPR systems. The goal of the work was to document these IPR assets and submit to the Government of India for safeguarding such products/green technology from GI and IPR point of view. The Prior Informed Consent (PIC) was obtained for every practice from a respective community leader to disclose their community based practices and publish them publicly.

Results and discussion

There were total 12 TK and plant based products/green technologies which have special attributes of geographical indications (Table 1). These listed products and technologies belong to community knowledge systems- the plant and method of making products are known and adopted by majority of community members of concerned community⁴. These products are unique because of the climatic conditions, types of species found in the concerned ecosystem and the unique processing/ methods of preparation. The communities concerned with these TK base products are *Adi* and *Monpa* tribes of East and West Siang districts of Arunachal Pradesh. From foregoing work, it could be learned that with other IPR, the use of Geographical Indications may enhance

the livelihoods of Traditional Knowledge holders of concerned tribes^{2,3}. This initiative of GI may become more important for: the promotion of products with specific characteristics, particularly those coming from less-favoured region of Arunachal Pradesh; the improvement of the income of tribal communities, in return for a *genuine effort to improve quality*; minimizing migration from rural to urban areas, giving incentives to TKHs to conserve the TK based plant biodiversity; and the provision of clear and succinct information to consumers regarding product origin. The traditional specialty may be guaranteed to TK based practices- as a trademark, which has a certain feature or a set of features, setting it clearly apart from other similar products belonging to the same category. The ensured GI may further help product(s) to manufacture them using traditional ingredients, and may also protect their characteristic for traditional composition and methodology of processing reflecting a traditional type of manufacturing/processing. Geographical names associating a product from *Adi* and *Monpa* communities with a particular place will have a great commercial importance for the consumer who like such products and often makes choices on the basis of geographical indications (Table 1). Therefore, *Adi* and *Monpa* communities of Arunachal



Fig.1 Yerchegomba (*C sinensis*)



Fig.2 Etting rice (*O sativa*)



Fig.3 Onger (*Z rhesta*)



Fig.4 Gale



Fig.5 Tasat



Fig.6 Amkel paddy(*O sativa*)

Pradesh may enjoy an exclusive right to their GI marked community based TK and plant based products, and green technology³.

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