

## **THE TRIPS AGREEMENT: POTENTIAL PRODUCTS FOR GEOGRAPHICAL INDICATIONS**

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Intellectual property of plant varieties is undoubtedly the main provision of the WTO TRIPS Agreement in the context of agriculture. This topic is discussed in the preceding chapter of this volume. The subject of this chapter is another key provision of the TRIPS Agreement - Geographical Indications (GI), addressed in Article 22 of the Agreement. This type of intellectual property (IP) protection is designed to safeguard a specific description or presentation, in relation to products, used to indicate the geographical origin of the goods, where the origin means a country, region, locality, or linear feature to which a product may be attributed as being customarily harvested or manufactured there.

The chapter is organized as follows. The following section introduces the key GI provision of the TRIPS Agreement and discusses some related issues, notably why further work in this area is valuable for Nepal. It is followed by discussion of 10 selected Nepalese agricultural products that could be considered as candidates for GI when the time comes for claiming this right under WTO multilateral registration framework. Unlike other chapters there is no section on concluding remarks for the simple reason that the main objective of the exercise is to stimulate further work in this area by illustrating an approach to consider Nepalese products for the GI classification. Areas where additional work would be useful are discussed.

### **THE GI PROVISION OF THE TRIPS AGREEMENT AND SOME ISSUES FOR CONSIDERATION BY NEPAL**

#### **The GI provisions**

Article 22 of the WTO TRIPS Agreement - Protection of Geographical Indications - provides a framework for the legal protection of prominent names of products identified to an area in a geographical sense. This is written as follows: "Geographical indications are, for the purposes of this Agreement, indications which identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin". Thus, GIs are typically place names (in some countries also words associated with a place) used to identify products with particular characteristics because they come from specific places. The WTO TRIPS Council has put into place a multilateral registration system for GIs for wines and spirits.

For most developing countries, however an issue that has been much discussed at the WTO in recent years is expanding the GI coverage to additional products other than wines and spirits. Many WTO Members have stated that it is

not fair that the GI coverage is limited to wine and spirits. They want similar protection to other products, such as *basmati rice*, *Darjeeling tea*, *neem* and so on.

This issue, i.e. whether or not to extend the coverage to other products, has been raised in the WTO Doha Declaration. When the Doha process resumes, after the failure at Cancun, Ministers may agree to work towards extending the GI coverage to other products also.

In view of this it would be useful for Nepal to initiate some debate and technical work in this area. One concrete way of doing so would be to identify and characterize some prominent Nepalese agricultural products that could eventually qualify for GI protection under current or revised rules. This is the purpose of this study.

### **Opportunities and issues**

Most currently established geographical indications are broadly related to agricultural products. The world-wide establishment of an IPR system related to this specific means of protection will most likely favour rural economies by increasing and ensuring farmers' incomes and investments in the production and marketing in this field. This would benefit several developing agricultural countries, like Nepal, where number of established valuable geographical indications native agricultural as well as industrial including metallic products exist. Obviously many of these geographical indication products as their trade names have already been established in the internal and external markets. Their trades are being carried out since time immemorial.

Nepal is also well known as a country with highly diversified physiognomic and climatic conditions ranging from tropical to Nival (Arctic) types. Hence, varieties of agricultural and horticultural non-indigenous crops have successfully been introduced since ages and have now been naturalised as the indigenous ones. Such crops, because of the remoteness and isolated conditions, have been preserved and survived with the local environment. Hence they are familiarly named after the Nepalese locality. Such products are prevalently and seasonally available in the local markets and are very popular among the consumers. Many of these local products, both the native and naturalised ones are contributing to Nepal's domestic economy.

One day hopefully Nepal can register these products under the GI category, and realize commercial benefits. Nepal indeed has immense opportunity in this area, due to agro-climatic diversity. Many of such products have not yet been significantly traded abroad, in large part due to problems related to volume, quality and promotion. Nevertheless, it is not early for Nepal to work towards developing necessary legal frameworks for the protection of the products.

At this initial stage, 87 popular GI products are identified herewith. Out of them 10 products are selected for detailed description. These constitute plant and animal products for the purpose of GI. Some of them are cultivated, and some are collected from wild source and marketed as such. Some are processed for use or sold in the local markets or exported abroad. All the listed products have already established their reputation representing their GI. Besides contributing to the coun-

try's economy, most of the products possess greater cultural and age-old traditional values. Their acceptability and palatability are intertwined in a way that blends with the fabric of present-day life in Nepal. At the same time, the taste of these products is getting more popular among the tourists from abroad. Many are originated in the region and some are naturalised in some suitable areas since long time. Simple enumerated list is given in Annex 1 for 78 products, categorized in the same pattern as for the 10 selected products. Some products having industrial values, bearing GI, but non-agricultural ones have also been enumerated for the registration purposes related to IPR.

### **Some suggestions for product development**

Different physiographic and climatic zones contributed Nepal to possess salubrious conditions, where different agricultural crops can be grown. Since ages different agricultural and horticultural crops have been introduced in different suitable climatic conditions. They are flourishing till now as the country's own native products getting more popular and favour bearing after locality names. In view of the WTO membership, it is time to initiate some work in this area, with the hope that Nepal can eventually take advantage of these products on a large, commercial scale. The following are some general suggestions. Product specific suggestions are in the part dealing with the respective product.

- Exploration of the products with geographical indication for inclusion in the list.
- Survey of international markets and marketing procedures for effective and efficient trade are to be conducted.
- R & D wing must supply relevant data for the improvement and development of plant, animal, and industrial products along with their analytical data for the quality control and standardisation of the products.
- Collection of biotic materials from the wild ensuring their sustainable utilisation,
- Promotion of cultivation in commercial scale.
- Exploration of suitable partner for collaboration in technology transfer and development
- Policy reform for effective and efficient trade

### **PROFILE OF SELECTED PRODUCTS FOR LIKELY GI REGISTRATION**

#### **Products of plant origin - *cultivated***

##### 1. *Jumli marshi* (rice from Jumla)

Yogi Chandan Nath is believed to have introduced *Jumli Marshi* from western Himalayan region some 900 years ago as a paddy crop suitable for agro-ecosystem prevailing in harsh temperate climatic condition of around 2,600m altitudes in Jumla area. To commemorate this occasion he built a temple with Lord Datatrya's footprints. Datatrya is believed to be the incarnation of Lord Shiva. This temple was later named as Chandan Nath Temple to respect his contribution to paddy and other agricultural development works in this area. This is the record of rice cultivation at the highest elevation in the world. Now, it is in the form of land-race cultivated in farmers' field all with different names given by farmers *Jumli marshi* described as *Rato* (red), *Seto* (white) and *Kalo* (black) for its panicle colour.

**Scientific name:** *Oryza sativa*

**Vernacular names:** *Jumli Maarsi, Raato Dhan, Kalo Maarsi, Seto Maarsi, Daarime (Nepali)*

**Family:** *Poaceae (Gramineae).*

**Geographic origin:** Western Himalayas (see action to be taken, below)

**Distribution:** Land races of *Jumli* rice are localised in Jumla area, 2200–3000 m altitude.

**Description:** *Jumli Marshi* is a high mountainous cold resistant paddy, which is grown annually in Jumla area of far western part of Nepal as a traditional crop. As it is cultivated in the cold area, the yield of the crop is low. Genetic base of this rice is different from that of present-day rice.

**Uses and users:** Previous Rana Prime-ministers before 1950, i.e. before the advent of democracy in Nepal, used to procure the *Jumli Marshi* luxuriously for their own use as delicacy due to its nice test and high nutritive value. At present only local people and farmers are using them during special occasions. Cultivation of rice in private field is considered to be prestigious in Jumla.

**Action to be taken:** Land races of Jumli rice need to be explored in detail for the development of improved varieties through participatory plant breeding or participatory variety selection. Very little is known about the genetic structure and relationship of these resources. Recently, studies on assessment of variation at the genetic level for estimation of the degree of relationship among individuals without the influence of the environment using micro satellite DNA markers were carried out. The studies indicated that these landraces were tightly clustered into a distinct group separate from that of the modern variety, and exhibited close relationships with different names assigned by farmers. This suggests that landrace names adopted by farmers based on the phenotypic characteristics of panicle and grains are inconsistent indicators of genetic identity in Jumla. In this respect, detail works on the origin and infra specific nomenclature are awaited.

**Commercial value:** Commercial value of Jumli rice is limited to local state at this moment. But it has tremendous potentiality due to its taste and nutritive value.

**Qualification for registration on GI ground:** Ever since the introduction of these landraces, Jumli rice has been traditionally and regularly cultivated in Jumla area. Isolated cultivation for long periods continues even now in remote and inaccessible areas of Jumla. These landraces possess specific adaptive trait for cold environment made them qualified for registration under GI ground.

**Useful references:** Bajracharya, J (2002), *A study of genetic relationships in rice (Oryza sativa L.) landraces of Jumla using micro satellite DNA markers*. Proceeding of First National *in situ* workshop, 2002, Pokhara.

Bajracharya, J (2003), *Genetic diversity study of rice landraces from three eco-sites of Nepal by use of agro morphological traits and micro satellite DNA markers*. Ph. D. Dissertation, 2003. University of Wales, Bangor, UK.

## 2. Pharpinge/Chhaimal Naaspaati (Pear From Pharping and Chhaimal)

**Scientific name (plant):** Oriental *Pyrus* sp.

**Vernacular names (plant):** *Naaspaati* (Nepali), *Paasi* (Newari), Round Pear (English)

**Family:** *Rosaceae*.

**Geographic origin:** It is being be cultivated since time immemorial in Pharping and Chhaimal, which are about 12 km southwest of Kathmandu.

**Description:** A medium sized deciduous tree cultivated in mid hills with sub-tropical climatic conditions. It flowers in early spring. Its leaves are broadly elliptic-ovate with truncate or slightly rounded base and pointed apex, margin obscurely serrate. Flowers white clustered in fascicles. Fruits round, size varies 7 to about 15 cm across, brown or reddish-brown when ripe.

**Uses and users:** This fruit is popularly known in Nepal as *Naaspaati*. It is very tasty, fragrant and juicy with few stone cells. The main market is Kathmandu valley. With the transportation facility this pear became available in the markets of other parts of the country, particularly at the border markets on the other side, where it is popularly known as *Nepali Syau* (Nepalese apple). Almost all these fruits are eaten fresh.

**Action to be taken:** Clonal selection should be carried out to get desirable quality to meet growing needs of the country and abroad. Promote and motivate mass scale production in the suitable parts of the country.

**Commercial value:** In the Kathmandu market, retail price varies from Rs. 20 to 30 per kg.

**Qualification for registration on GI ground:** Since long Pharping, some 12 Km southwest of Kathmandu has been a popular place as a supply point of this variety of pear in the country. Recently, many hybrids of this pear with some Japanese ones are available in the market in Kathmandu and other parts of the country.

## 3. Pyuthaane moola (radish from pyuthan)

**Scientific name (plant):** *Raphanus sativus*

**Vernacular names:** *Pyuthaane Moola* (Nepali). *Lain* (Newari), Radish (English).

**Family:** *Cruciferae*.

**Geographic origin:** Radish probably originated in western Asia. It was cultivated in ancient Egypt, Assyria, Greece, and Rome. It has now spread throughout the world. The stock of the Nepalese radish from Pyuthan, the *Pyuthaane Moola*, is believed to be Tropical Asian Radish. Previously as it was not recorded in India, it was believed to have been introduced to Pyuthan by Gorkha army people (locally *Lahure*) from Malaysia about a few centuries ago.

**Distribution:** Cultivated throughout the country in sub-tropical and temperate zones.

**Description:** Annual herb 20 cm to about a metre high (when flowering or fruiting) with a cylindrical or tapering, swollen taproot, the radish, which is red to white, or

purple-green in colour and up to about a metre in length and 15 cm across. Radish is harvested before flowering stem develops. Leaves lyrate to pinnatifid. Flowers white to lilac, fruits lomentum, inflated, indehiscent, 2 to 6 cm long, about 1 cm in diameter with a few to 12 seeds and long conical beak.

**Uses and users:** This radish is very popular in the mid hills and low mountains including Kathmandu valley. Radish is used as fresh salad and *Achaar* (freshly prepared pickles) with souring materials preferably *Lapsi* fruit, Nepalese hog plum. Radishes with more pungent flavour are preferred much. Radish is more popularly used as fresh vegetable, dried vegetable locally known as *Moola-Chanaa* (Nepali), *Lainsoo*, and *Kepu*, the seeds (Newari), fleshy fermented radish, *Sinaamuni* (Newari) and dried one, *Sinki* (Nepali, Newari); leaves fermented and dried *Gun-druk* (Nepali, Newari). The seed powder is used as spice for preparing *Achaar*.

**Active constituents:** This radish has high content of Carotene and sulphur.

**Action to be taken:** Beside production of fresh radish other products, particularly dry vegetable popularly known as *Moola-Chanaa* with its characteristic flavour should be popularised and standardised that can fetch good market not only in Nepal but abroad also.

**Commercial value:** In Nepal the market strength of seeds of this radish is about 500 Kg. At present by intensive selection and cloning, varieties that can be harvested radishes within 30 to 45 days from the date of planting have been developed. (Personal communication- Dr. Kedar Budhathoki). However the size is considerably reduced.

**Qualification for registration on GI ground:** Pyuthane Moola though believed to be introduced to Pyuthan about a few centuries ago has now been naturalised and spread throughout Nepal under the name Pyuthane Moola. It is one of the indispensable items to worship Lord Ganesh throughout the country. It attaches with religious and socio-cultural values in Nepal.

#### **Products of plant origin - *cultivated and processed***

##### 4. *llame chiyaa* (llam tea)

**Scientific name** (plant): *Camellia sinensis*

**Vernacular names** (plant): *Chiyaa ko bot*

**Vernacular names** (finished product): *Chiyaa* (Nepali, Newari). Tea (English).

**Family:** *Theaceae*.

**Geographic origin:** Tea is believed to have originated in China, where earliest known record about tea appeared in Chinese literature around 350 AD.

**Distribution:** In Nepal the present day tea *Camellia sinensis* was introduced in 1863 AD. The Rana Prime Minister Junga Bahadur Rana brought back pure China tea seeds received from the Chinese Emperor as a gift and a token of friendship between Nepal and China. He gave these seeds to his son-in-law Colonel Gaj Raj Thapa, the then Governor General of the eastern region of Nepal to grow in Saktim in llam. Since then the cultivation spread in wider areas and commercially grown in tea-estates known as *Chiya Bagan* in Nepali in and around llam, about 1500 m altitude.

In recent years, tea plantation has been extended to eastern lowland plains also in Nepal.

Around late 1930s some Nepalese entrepreneurs started tea cultivation in the surrounding hills of Kathmandu valley, namely Manichur in the north and Pharping in the southeast. This tea plant was not the present day *Camellia sinensis* but a native and wild related species *Camellia kissi*, locally known as *Hingua* or *Chhiyapate* and *Osyris wighthiana* (*Nundhiki*) of the family *Santalaceae*. They are the principal constituents of *Bhote Chiya*, a popular drink taken with salt and butter prevalent in these days in high Himalayan areas and adjoining Tibetan plateau.

**Description:** *Camellia sinensis*, the present-day tea is an evergreen plant maturing in 3 – 5 years. It grows to about 9 m high in wild, but in cultivation it is pruned to keep between 90 cm to 120 cm high. Its flowers are white with sweet smell. Crop of young shoot with a few leaves are harvested from the bush by hand plucking.

**Uses and users:** Tea drinking habit in public started in Nepal only about 50 years ago after World War II in 1945 when the Nepali soldiers after the war started coming back to Nepal. Before this only a selected people used to drink *Bhote Chiya* or only some selected people, who were privileged to visit Indian cities like Calcutta, Patna, Banaras etc. were habituated to drink sweet milk tea.

Action to be taken: Exploratory works on *Camellia kissi*, (*Hingua*, *Chhiyapate*) and *Osyris wighthiana* (*Nundhiki*) should be carried out for commercial tea production along with the promotion of *Camellia sinensis* cultivation.

**Commercial value:** About 1,000 tons of Orthodox tea is produced and exported from Nepal. It fetches US \$ 50 to 150/Kg. based on quality in overseas countries. It is said that 80 % of the total amount is exported through India at the rate of Rs. 350 (4.6 US \$)/ Kg. So, Nepal is loosing US \$45 to 145/ Kg (US \$ 36 to US\$116 million) every year (personal communication with FNCCI). It is quite a big amount for an under developed small agricultural country like Nepal.

**Qualification for registration on GI ground:** Nepal is now producing exportable teas. One of them is Mai Valley Pure Ilam Tea as brand name with GI under Nepal Tea Development Corporation Ltd.

## Wild source

### 5. *Nepali kagaj* (hand-made paper)

The history of papermaking can be traced back to 12<sup>th</sup> Century AD, when hand made paper was used extensively for writing mantras, tracts and books of religious and secular nature. The technology of paper making probably came to Nepal from China via Tibet. Presently the quality and standard of paper has been improved remarkably although the traditional technology remains the same except that modern chemicals have gradually replaced the use of ash. Export of the paper worth Rs.580 million excluding Greeting and UNICEF Cards, Calendars worth of about Rs. 50 million (Year 2002-2003). Main buyers are USA (27%), UK (20%), France (17%), Germany (4%), and Japan (6%). Each sheet of the paper measures 20 by 30 inches and weighs 5 to 100 grams. Up to 20 grime-paper costs Rs 7, and above 40 grime paper costs Rs.13 – 16 and some are coloured costing about

Rs.22-26 each. (Personal communication R. K. Dhaubhadel, Hastakala Udyog, Bhaktapur). Trade of this hand-made paper is in increasing trend.

**Scientific name (plant):** *Daphne* species (see note below)

**Vernacular names (plant):** *Loktaa, Kaagat paate* (Nepali).

**Vernacular names (finished product):** *Nepali Kaagaj* (Nepali), Nepali paper, Rice paper(English)

**Family:** *Thymelaeaceae*.

**Distribution of the plant:** Himalaya from Kashmir to Bhutan, East Tibet. In Nepal It occur all along Nepal Himalaya in Sub-tropical to Temperate zones.

**Description:** An erect or spreading evergreen or deciduous shrub, up to 2m tall. Leaves elliptic to oblanceolate, 5- 10 cm long, dull green, leathery. Flowers sweet-scented, white flushed externally pink or purplish, borne in terminal rounded stalkless clusters. Flowers with slender silky-haired, 6-12 mm long tube and with 4 broad or narrow ovate, acute, spreading lobes. Fruits ellipsoid, black when ripe.

**Uses and users:** Fibre from inner bark is used in making hand-made paper. Paper is of multipurpose for writing, wrapping and packing, printing, decorating wall-paper, invitation/greeting cards, calendars etc. As it is highly durable, strong, and resistant against multiple folding and unfolding for long duration, important and valuable documents, like horoscope, certificates, files and writ papers of courts, important legal decisions, amicable and other settlement etc. are made. This paper has been used since long. These days modern machine-made papers are gradually replacing it. However, the use of Nepali paper is still in practice for important documents mentioned above written with indigenous permanent black ink. For such purposes, recently improved quality Nepali hand-made papers are in vogue.

**Active constituents:** Fibres of the inner bark are extracted and made into pulp for papermaking.

**Action to be taken:** *In situ* and *ex situ* Germplasm Conservation, Exploration and selection of high yielding clones; promotion of commercial cultivation and production for uses in different industries in the country itself. Of the five species including two varieties of *D. bholua*, should be studied in detail and determine suitable species for propagation and exploitation for industrial scale.

**Commercial value:** High demand in local as well as in overseas countries. Recently plantation of *Daphne* from wild source has been initiated in some hilly parts of the country.

**Qualification for registration on GI ground:** The name, Nepali Hand-made Paper is known worldwide using its own resources. This signifies use of Nepal's indigenous and traditional knowledge/technology for the production of this unique paper.

**Other notes:** Two varieties of *Daphne bholua* Buch.-Ham. ex D. Don namely *bholua* and *glacialis* commonly occur in Nepal. Of the two varieties, *bholua* is evergreen and distributed in the temperate climatic belt of Central Nepal eastward to East Tibet. It is believed to have been originated in Yunan. Whereas *glacialis* is deciduous and grows in temperate and sub-alpine belts of Nepal and Sikkim, to



where it is endemic. Both of these varieties are used in making paper. Three other Nepalese indigenous species that are also used in papermaking are (a) *Daphne papyracea* Wall. ex Steudel, also endemic to Himalaya occurring from Kashmir to Central Nepal between upper sub-tropical and upper sub-alpine belt; (b) *Daphne retusa* Hemsley originated in Yunan spreading all along Himalaya from Kashmir to Bhutan and S & E Tibet. In Nepal it grows between lower temperate and upper sub-alpine belts. (c) *Daphne sureil* W.W. Smith & Cave, endemic to Himalaya from Central Nepal to Assam in sub-tropical belt.

6. *Sallyani/Pyuthane timoor* (Nepali pepper from Sallyan and Pyuthan)

**Scientific name:** *Zanthoxylum armatum* DC.

**Vernacular names:** *Timoor* (Nepali), *Tebhoo* (Newari) Nepal pepper (English).

**Family:** *Rutaceae*.

**Geographic Origin:** Sino-Japanese region including Nepal.

**Distribution:** Himalaya from Kashmir to Bhutan, East Tibet. In Nepal it occurs all along Nepal Himalaya. However its prominently oil-rich fruits are found in Sallyan and Pyuthan areas from Sub-tropical to Temperate zones. Hence the name is *Sallyani* and *Pyuthane Timoor*, Nepal Pepper from Salyan / Puythan

**Description:** A prickly shrub or a small tree, 7m tall growing in shrubberies and cultivated areas Stem with flattened based prickles. Leaves 3-foliolate or odd pinnate, 4-8cm long with winged stalk. Leaflets 3-7, lanceolate with often with prikles on the midrib beneath, dark green above and pale beneath. Flowers yellow in loose, short lateral panicles. Fruit pale red on ripe, globose about 4mm across, strongly scented with typical and pungent smell and with conspicuous oil glands on the surface of the fruit. Seed solitary, shining black.

**Uses and Users:** Fruits are used as spice, medicine, and as a component of tooth powder/paste and in perfumery, by the households and industry

**Active constituents:** Essential Oil having high percentage of Linalool is procured from Pericarp of fruits through steam distillation.

**Action to be taken:** *In situ* and *ex situ* Germplasm conservation, Exploration and selection of high yielding clones; to initiate activities for commercial production for uses in different industrial preparations in the country itself.

**Commercial value:** High local as well as outside demand for spices and for other commercial products, Nepalese market price for export of Timoor reached to Rs. 150 to 200 and, Nepalese Road-head price ranges from Rs.60 to Rs.100 per/Kg. (Personal contact: Agro Enterprises Centre, Kathmandu).

**Qualification for Registration on GI ground:** Salyan and Pyuthan are the producing areas of Timoor of good quality having high oil value since long. It is being exported in raw form from various exit points like Nepalgunj, Koilabas, and Butwal in the west, Birgunj and Kathmandu in the central and Dharan in the east totalling over 1000 tons per year.

**Other notes:** Small scale-distillation plants are established by various private parties for local consumption. Dabur Nepal is the main consumer of raw as well as

oil in the country. It consumes 500 tons of raw materials of Timoor (Personal communication M. Haque). Preparation of consumer goods with Timoor as principal constituents in Toothpowder, Toothpaste, and Balms by local pharmaceutical and chemical industries. These preparations are said to be very effective for cleaning, shining of the teeth, curing toothache, and Gingivitis, etc. Preparations for stomach troubles, like Gastritis, Flatulence and Indigestion etc. produced by local small scale industries run by traditional experts and practitioners are popular in Nepal.

## Animal origin

### 7. Koshi ko Jalkapoor (Jalkapoor fish from Koshi river)

**Scientific Name:** *Pseudeutropius antherinoides* (See Notes below)

**Vernacular Names:** Jalkapoor (Nepali)

**Family:** Schilbeidae

**Distribution:** It is distributed in Assam, Sindh in India, Bangladesh and Nepal. In Nepal it is found in all bigger rivers namely Koshi, Gandaki, Karnali and Mahakali.

**Description:** Jalkapoor is an omnivorous fish and active in warm and sunny weather in monsoon. It is silvery white in colour with comparatively small fins and tail. The head of the fish is broad with dark summit. Its maxillary barbells are longer than the mandibular ones. It reaches 25 to 30 cm long and weighs about one kilogramme.

Jalkapoor is one of the most favourite game fishes of anglers in Nepal as it contains little bony elements and scales. Its flesh contains good amount of fat. Camphor like fragrance emanates from its fried preparations; hence it is called Camphor of Water or Jalkapoor.

**Uses and Users:** Jalkapoor fish is very popular in Nepal. It is seasonally available in markets throughout Nepal.

**Action to be taken:** Nepali vernacular name Jalkapoor is applied to the following species: (1) *Pseudeutropis antherinoides*, (2) *Pseudeutropis goongaware*, (3)\**Pseudeutropis murius batraensis*, (4) *Clupisoma garua*, (5) *Pseudeutropis goura*, (6)\**Barilius jalkapoorei*. Hence, the Nepali name equivalent to scientific nomenclature should be authenticated and revised. Their breeding behaviour should also be assessed for the promotion of their commercial farming in an appropriate environment.

**Note** \*Species with asterisk marks are Endemic to Nepal. (Biodiversity Profile Project, 1995).

**Commercial value:** Present retail market price is Rs. 120 to 150 per Kg. About 4 tons per hectare per year has been harvested from snow-fed river systems, namely Koshi, Gandaki and Karnali in Nepal. Its productivity is 10 Kg / ha. About 3950 tons of Jalkapoor fish can be harvested from (395 thousand hectare area of these river systems in Nepal. (Personal communication- Gagan B. Nhuchhe Pradhan).

**Qualification for Registration on GI ground:** A tasty fish popularly used as delicacy in Nepal. Camphoric fragrance emits when fried is the unique feature of this fish.

**References:** Biodiversity Profile Project, 1995- Biodiversity Profile of Terai and Siwalik Physiographic Zones. BPP Publication No. 12. Department of National Parks and Wild life Conservation, HMG of Nepal.

Shrestha, T. K. (1981)- Wildlife of Nepal A Study of Renewable Resources of Nepal. Curriculum Development Centre, Tribhuvan University, Nepal.

**8. Kulekhaani ko asla maachhaa (Asla fish from Kulekhani)**

Since a long time this fish as delicacy is popular in Kathmandu valley. Before the construction of Tribhuban Highway one has pass to Kulekhani, as it is being the halting place, where dinner, tea, and lunch etc. could be enjoyed with fresh water Asla fish. For tourist travelling to and from Kathmandu, Kulekhani is the only entry/exit point to outside world. Hence, *Asla* fish from this locality became so popular in Kathmandu valley. Presentation *Asla* fish as souvenir from Kulekhani even to high-ranking officials and respected persons in Kathmandu or elsewhere has become a usual tradition especially during Dasai and Tihar festivals. At present this fish from Malekhu (Dhading District) on Prithwi Highway is getting popular due to the construction of the highway.

**Scientific Name:** *Schizothorax plagiostomus*

**Vernacular Names:** *Aslaa* (Nepali), Hill Stream Trout (English).

**Family:** *Cyprinidae*.

**Geographic Origin:** Himalayan mid Hill Rivers and streams.

**Distribution:** *Asla* is found in most of the hill streams of Nepal. However, this species of fish from mid-land hill streams of Kulekhani of Makwanpur, Panauti of Kabhre, Mardi Khola of Kaski, etc of Central Nepal are the country's most popular places for *Asla* fish.

**Description:** A fish usually 20-30 cm and sometime 50 cm long and weighing as much as 500 grams. It is herbivorous, bottom feeder living on algae and organisms impregnated in mud. It is usually found in moderate stream and natural ponds. It spawns during September-October, and March-April.

**Users:** Local as well as Kathmandu valley people and tourists.

**Action to be taken:** Control over exploitation and mass destruction by faulty fishing with the use of fish-poison. It is a delicate fish. It cannot tolerate high intensity of sound. Hence fishing by hammering loudly on nearest rock should also be prohibited. Exploration, genetic assessment and breeding behaviour of this fish for commercial farming should be promoted.

**Commercial value:** Local current price of this species is about Rs. 200 to 300 per Kg.

**Qualification for Registration on GI ground:** This Indigenous fresh water species is a popular game fish and highly prized as a delicacy in Nepal.

**Reference:** Shrestha, T. K. (1981)- Wildlife of Nepal A Study of Renewable Resources of Nepal. Curriculum Development Centre, Tribhuvan University, Nepal.

#### 9. Achhaami gai (Cow from Achham)

**Scientific Name:** The breed of these cattle is a descendant of the early humped cattle of Asia, *Bos indicus*. It is still open to investigation for infra specific nomenclature authenticity due to its rigid characteristic feature of uniquely small body size.

**Vernacular Names:** *Achhaami Gai, Naumuthe (Nepali)*, Achhaam cattle (English).

**Family:** *Bovidae*.

**Geographic Origin:** Asia

**Distribution:** The breed of these cattle is localized in the districts of Achham, Dadeldhura, Doti, Baitadi, Darchula, etc in Mid and Far Western development regions of Nepal.

**Description:** *Achhaame Gai* is a unique cattle exclusively reared in Achham district of Nepal since ages. It is the smallest known breed in the world. Its height is below one metre. It is adapted to hilly and mountainous conditions. It yields good amount of milk in spite of being small in size and continues to give milk for a longer period in comparison to other cattle. It is of this quality that rearing of these cattle has been put into practice in those remote areas. Because of its extremely localised nature, it is placed in the globally endangered status. (Personal communication Dr. Shreeram Neopane, Head, Animal Breeding Division, NARC, Khumaltar, Nepal).

**Uses and Users:** The use and the user of this least known cattle are highly localised in the narrow area of mid hills of mid west and far west development regions of Nepal.

**Action to be taken:** These cattles are endangered. Further scientific investigation on genetic characterisation for breeding and other development purposes is highly desirable and should be well protected before being wiped out from the world.

**Commercial value:** Commercially very potential for its milk and adaptation to difficult hilly and mountain terrain.

**Qualification for Registration on GI ground:** This unique and smallest breed of cattle known in the world is surviving in Mid and Far Western development regions of Nepal and Achham being the typical district of Nepal since ages. Its name is derived from its geographically extremely localised area of rearing.

#### 10. Lulu gai (Lulu cattle)

**Scientific Name:** The breed of these cattle is a descendant of the wild cattle of Europe, *Bos taurus*.

**Vernacular Names:** *Lulu Gai (Nepali)*, Lulu cattle (English).

**Family:** *Bovidae*.

**Geographic Origin:** Europe

**Distribution:** Lulu cattle are reared in Mustang, Manang and Dolpo, the Trans-Himalayan Districts of Nepal since ages.

**Description:** *Lulu Gai* is a hardy, cold resistant, and mountainous cattle of small body size. It yields less amount of milk, hence this cattle is raised not for milk but as a beast of burden for transportation and ploughing the field after castration. It is well adapted to cold and dry condition and its raising is localized in Trans-Himalayan areas, like Mustang, Manang and Dolpo across Annapurna; and Dhaulagiri Himalayan Ranges. This suggests that these cattle might have been introduced from Europe through Mongolia, China including Tibet. At present due to its highly localised and isolated nature it is placed in the globally endangered status. (Personal communication Dr. Shreeram Neopane, Head, Animal Breeding Division, NARC, Khumaltar, Nepal).

**Uses and Users:** The use and the user of this less known cattle are localised in the narrow area of the Trans-Himalayan areas.

**Action to be taken:** The status of these cattle is endangered. Further research and investigation on genetic characterisation for breeding and other utility purposes is highly needed. The species should be well protected before being wiped out from the world.

**Commercial value:** Locally traded as transporting and ploughing animal.

**Qualification for Registration on GI ground:** This breed of cattle is naturalised and at present restricted to high Himalayan area in Nepal since ages. Its present status is endangered.

**List of additional plant and animal products with Nepali name and likely candidates for Geographical Indications**

**PLANT ORIGIN**

Cultivated

1. *Ilam ko Alainchi* (Big Cardamom, *Amomum subulatum* from Ilam).
2. *Dhunibensi ko Ambaa* (Guava, *Psidium guajava*) from Dhunibensi.
3. *Nepali Makai Bodi* (*Vigna unguiculata*) grown in corn field.
4. *Sindhuli ko Junaar* (Orange, *Citrus sinensis*) from Sindhuli.
5. *Lapsi* (Nepalese Hog Plum, *Choerospondis axillaris*)
6. *Malbhog keraa* (Banana, *Musa* sp.)
7. *Trisuli/Gorkha/ Palpa ko Pindaloo* (Corm of *Colocasia* sp.) from Trisuli, Gorkha, Palpa.
8. *Pokhareli Masino* (*Oriza sativa*) developed at Pokhara.
9. *Lukla ko Simi* (Beans, *Phaseolus* sp.) from Lukla
10. *Bjhang/Simikot ko Simi* (Beans, *Phaseolus* sp.) from W. Nepal (Bajhang, Simikot).
11. *Khoku ko Suntalaa* (Mandarin, *Citrus reticulata*) of Khoku, Dhankuta.
12. *Jumli/Helambu/Marpha ko Syau* (Apple, *Malus domestica* from Jumla, Helambu and Marpha
13. *Tutrun tarul* (*Hibiscus sabdarifa*) from Tutrun, Saptari
14. *Dhunibansi/Tokha ko Ukhu* (Sugarcane, *Saccharum officinarum*) from Dhunibansi and Tokha.
15. *Uwa* (High altitude Barley, *Hordium vulgare* var. *nudum*).

Cultivated and Processed

16. *Nepali Aaloo ko achaar* (Pickle of Potato, *Solanum tuberosum*).
17. *Amp ko Achaar* (Seasoned pickle of Mango, *Mangifera indica*).
18. *Bhote chiya* (*Camellia kissi* and *Osyris wighthiana*) Mustang, Manang, Solukhumbu, etc.
19. *Tokha ko Chaaku* (Jaggery of sugarcane, *Sacharum officinarum*) from Tokha.
20. *Chhampa* (Flour of baked wheat, *Triticum aestivum* or barley, *Hordium vulgare*).
21. *Paschim Nepal ko Chiuri gheu* (Butter of *Chyuir*, *Aesandra bytaracia* from W. Nepal – Gulmi, Pyuthan, Arghakhanchi.
22. *ChukAmilo* (*Souring materials, Boiled juice of Citrus fruits spp.*).
23. *Dalechuk* (Fruit juice of *Hippophe tibetana*)
24. *Gundruk* (Silage of green vegetables of Mustard family).
25. *Khokhana ko Tori ko Tel* (Cooking Mustard, *Brassica campestris* var. *toria* Oil from Khokana).
26. *Nepali Lasun ko Achaar* (Nepalese Seasoned pickle of Garlic, *Allium sativum*).

27. *Masyoraa* (Nuggets) made up of *Maas* (Black gram, *Vigna mungo*) and *Colocasia* mixed).
28. *Nepali Moola ko achaar* (Seasoned pickle of *Raphanus sativus*).
29. *Moola ko chaanaa* (Dried vegetable of radish *Raphanus sativus*).
30. *Saano Keraau ko achaar* (Pickle of Small pea, *Pisum sativum var. arvense*).
31. *Sattu* (Flour of baked wheat, *Triticum aestivum*).
32. *Nepali Sutho* (Nepalese Dried Zinger, *Zingiber officinale* ) from Pyuthan and Butwal.
33. *Manihari ko Taamaa* (Fermented bamboo shoot) from Manohari.
34. *Tikin baji* (Rice flakes of *Oriza sativa*) from Tikni, Bode (Bhaktapur).
35. *Titaura* (Nuggets of Moong, *Vigna radiata*).
36. *Wolaa waa* (Hill Paddy, *Oriza sativa*) and *Baji* (Beaten rice, rice flakes).

### Wild source

37. *Amaala* (Fruits of Embellic myrobolan, *Phyllanthus emblica*)
38. *Bhyaagute neuro* (Vegetable from *Polysticum squarrosum*)
39. *Daanhte neuro* (Vegetable from *Dryopteris cochleata*)
40. Fibre from Allo (*Girardiana heterophylla*)
41. Fibre from Hemp (*Cannabis sativa*)
42. Fibre from Odal (*Sterculia villosa*)
43. *Halhale* (Vegetable from *Rumex nepalensis*)
44. *Jire neuro* (Vegetable from *Thelypteris ciliata*)
45. *Kaalo Neuro* (Vegetable from *Athyrium boryanum*), (*Diplazium solierkae*).
46. *Khichaa bhyaatah* (*Blumea lacera*)
47. *Khulu-Simali*, bread made from dried green algae (*Prasiola* sp.).
48. *Koche neuro* (Vegetable from *Thelypteris multilineata*)
49. *Rukh Neuro* (Young Fronds of Tree Fern, *Cythea spinulosa*).
50. *Sisno* (Vegetable from *Urtica dioica*)
51. *Thotne* (Vegetable from *Aconogonum molle*)
52. *Toosaa* (Vegetable from Young shoot of *Arundinaria* sp.)

### **ANIMAL ORIGIN**

53. *Bhyaglung* Sheep (Northern aspect of Himalaya Mountain, representing 1 % of the total sheep in Nepal; Features: Yields best type of wool for carpet, adopted in high hills and mountains, Disease resistant; Status declining population).
54. *Humla Chyapu* (Small-bred Mountain Goat from Humla)
55. *Bhaktapure Juju dhau* (King Curd from Bhaktapur).
56. *Jumli Ghoda* (Horse from Jumla).
57. Pigmy hog (Smallest pig, each weighing 20 – 25 Kg)
58. *Pokharali Battain* (Quail of Pokhara – popular in fighting bird)
59. Yak and Yak Cheese from Langtang/Jiri,

### **LIQUORS AND BEVERAGES**

60. *Ailaa/Rakshi* (Nepali whisky of Newar).
61. *Haai laama* (Blended Nepali liquor)

62. *Jaand* (Rice wine of Newar Community)
63. *Manaa* of Newar (Yeast spawn spores grown on boiled wheat flakes)
64. *Marcha* (Yeast cake)
65. Marpha Brandy
66. *Nigar* (Corn and Millet Wine of Tamang, Sherpa, Gurung, Rai, Limbu etc community).
67. *Tumba* (Millet wine of Sherpa and Bhotia community).

## **INDIGENOUS KNOWLEDGE AND TECHNOLOGIES FOR INDUSTRIAL PRODUCTS**

68. *Bhadgaunle Takuwa Topi* (Black National Cap from Bhadgaon)
69. *Palpali/Terhathume Dhaka* (*Dhaka* Cloth and *Dhaka* cap from Palpa and Terhathum).
70. *Karuwa, Amkhora, Ghalcha, Gagro* (Different kinds of Water pot with or without spout of different shapes and sizes from Chainpur, Bhojpur, Palpa)
71. *Khukuri* from Bhojpur
72. *Palaanchoke Jutta* (Crude Leather shoes from Palanchok, Kabre- Palanchok District)
73. Nepali Cloth/Velvet Lounge Slipper made up of velvet cloth with Thread/Rubber sole from Kathmandu
74. *Nalu Lakan* (Shoes and Slipper made up of *Agave* fibre).
75. *Maakacha* (Metal ear-ring worn by peasants of Lalitpur)
76. *Haakupatasi* (Black hand-woven Sari with broad red border worn by female farmers of Lalitpur and Bhaktapur weaved by themselves).
77. *Damberkumari Khasto/Pachhaura* (Thin and printed cloth used as Shawl).
78. *Pasmina Khasto/Pachhaura* (Nepali Pashmina Shawl)