

## Chapter 24

# Ethnobotanical uses of *Parasassafras confertiflora* (Meisner) Long in Serthi gewog

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Ethnobotanical surveys include applied projects that have the potential to ameliorate poverty levels of local people, allowing them to make more educated decisions. These new approaches enhance the quality of the science, provide compensation for the cultural groups and take into account environmental concerns. Applied ethnobotany contributes in preservation, recovery and diffusion of local botanical knowledge and wisdom to play fuller roles in identifying and finding solutions to problems of conservation and sustainable development (Hamilton et al., 2003). Methods to identify medicinal plants include random screening, taxonomic collecting or by ethnobotanical collection. It has been shown that ethnobotanically derived compounds have greater activity than compounds derived from random screening and therefore a greater potential for product development (Choudhary Singh, and Pillai, 2008). According to Hoareau and DaSilva (1999), traditional and folklore medicine bequeathed from generation to generation is considered rich in domestic recipes and commercial practice. Plants were known as the high reservoir of high quality food and readily available raw materials in cosmetic, perfumery and pharmaceutical industries without impact on environment (Mughal, Saba, and Iqbal, 1999).

Gas chromatography analysis of oil extracted from six *Litsea* species of Lauraceae family reported from North-East India has indicated that lauric acid was dominant fatty acid in all the species which has antiviral, antibacterial and antiprotozoal properties. For example, the oil from *Litsea confertiflora* is used by *Sherdrukpen* tribes of Arunachal Pradesh in their diet (Kotoky, Pathak and Kanjilal, 2007). Since the genus *P.confertiflora* belongs to family Lauraceae which is known for high seed oil content but report on oil production and its uses are limited. The distribution of *P. confertiflora* in Shingkarh Louri and seed oil being edible and nutritious has been already indicated however traditional method

of extracting oil from this plant and various ethnobotanical and ethnoveterinary uses are not being reported from this *gewog* (village block).

This study mainly reports on traditional method of extracting oil from this plant and its ethnobotanical other than indicated earlier. There is also a need to carry out chemical and pharmacological study of seed oil from *P. confertiflora*.

### Distribution and Botanical Description

*P. confertiflora* (Seshing in sharchop, a local dialect) is a monotypic genus under Lauraceae, known only from Bhutan, Upper Burma (Myanmar) and West China (Grierson and Long, 1984; Panda, 2006). *P. confertiflora* is a deciduous tree, distributed mainly in tropical and subtropical regions of those countries. In Bhutan, the plant is found in altitude ranges from 900-2150m and grow well in places like Shamkhara under Sarpang Dzongkhag, Deothang, Shingkar Louri, Wamrong and Kangling under Trashigang and Mongar (Panda, 2006). The tree is small 4-12m, have smooth branches, glabrous with ovoid terminal and axillary buds and broad rings of bud scale scars. Leaves are coriaceous, broadly ovate, and shortly acuminate and base rounded. The juvenile leaves sometimes acutely 2-3 lobed near apex, pale beneath and strongly 3-veined above the base. Plant is dioecious with male and female flowers borne separately. Flowers are white in colour having distinct 5-8 petals and several umbels clustered around a terminal bud which develops into a new leafy shoots. Fruits are seated on shallowly discoid perianth tube and matured seeds are black, and are ovoid or subglobose in shape (Grierson and Long, 1984). The fruits give nasty smell after ripening due to oil content.

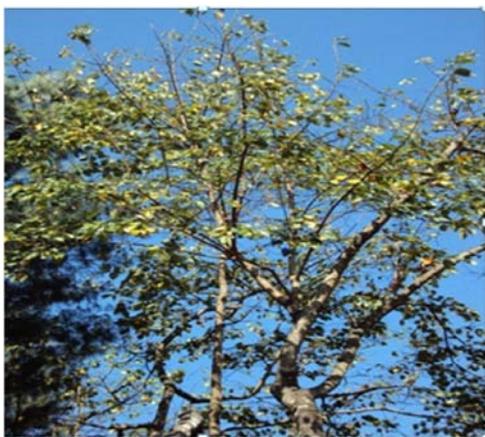


Fig.1. *Parasassafras confertiflora* (Seshing )



Fig.2. Twig bearing fruits

### Study Area

Serthi *gewog* is under Jomotshangkha *Dungkhag* (sub district), Samdrup Jongkhar in Bhutan and it is bordered by Lauri *gewog* in the north, Langchenphu *gewog* in the

south, Martshala *gewog* in the west and Arunachal Pradesh of India in the east. The *gewog* has 13 villages with 333 households. Serthi *gewog* covers an area of about 303 square kilometers. The *gewog* experiences sub-tropical climate and altitude ranges from 600 to 2200 metres above the sea level. This place falls in humid subtropical agro ecological zone of the country, with vegetation dominated by temperate forest. The annual rainfall is 1500-2000 mm per annum and temperature differs between 30°C in summer and 15°C in winter. The people of this *gewog* depend mainly on subsistence farming system.

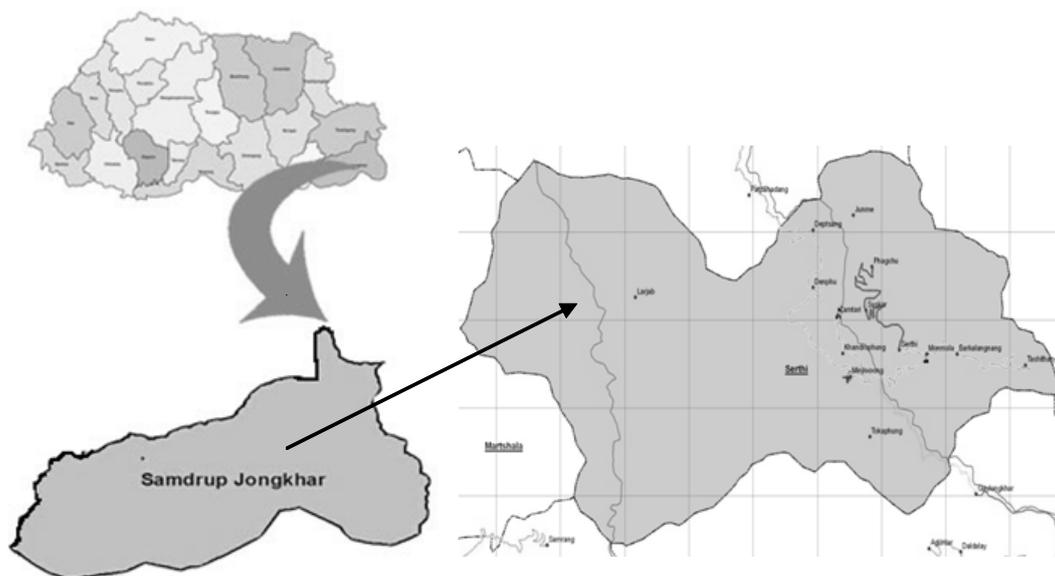


Fig.3: Serthi Gewog (*Annual Dzongkhag statistics, 2010*)

### Material and Method

Field strips were conducted in Serthi *gewog* under Samdrup Jongkhar district during first and second week of January 2012. The semi-structured face to face interview was carried out with key informants of local community of Khandupung, Serthi, Monmola and Minjiwoong village. The information was collected from 20 household of four villages in Serthi *gewog*. Local people were randomly asked questions to gather necessary information on medicinal uses of plant and the processing of seed oil. Fieldtrips were made to locate the plants. The flowering and fruiting time of this plant is recorded. Voucher specimen of the plant is deposited in herbarium of Sherubtse College, Kanglung, Bhutan.

### Result and Discussion

The plant is found in wild and is an oil yielding plant. Local people usually harvest fruits during early autumn before their maturity. The fruits dried under sun for 2-3

days are stored in basket or sacks and kept in the ventilated house for 2-3 months. Fruits are then roasted in metallic pot (locally known as *La-nga*) kept on the fire until they are ready for crushing. Fruits are crushed into small pieces with help of wooden pestle and mortar made up of stone. The crumbled fruits are roasted once again and put into filter basket (locally known as *Tsermoo*) made up of bamboo, which has got tiny holes. The filter basket is then placed between wooden planks and extract collector (locally called as *Merkang*) which works as lever to drain out the crude extract from material. About 150-200 kg of stone is used to press the *Tsermoo* and filter out the oil through holes for two to three hours. The dark brown oil is collected in the clean pot. The extracted oil is stored in bottle, plastic or *Palang* (traditional container) made up of bamboo for future use.

The similar method is also used to extract oil from seeds of *Lindera neesiana* (Neng shing), and *Aesandra butyracea* (Peen shing). The oil can be stored for more than a year.

Local people extract oil from fruits because of its medicinal use. The oil is said to be very nutritious and edible (Panda, 2006) but the high consumption of oil has been indicated to cause diarrhoea in human and gives energy (Matsushima et al., 2007).



Fig.4. Traditional process of oil extraction using *Tsermoo* and *Merkang*



Fig.5. Seed oil in metallic pot

Besides this seed oil is mainly used in injuries, cracked skin and blisters of both human and animals. This oil is also used as lotion and applied to the body parts during fieldwork to repel parasites and harmful insects. The oil is also used for tanning leathers items and lighting traditional lamps. Most importantly, the oil is given to heal up internal injuries of pregnant mother after delivery.

Almost all the households of four villages were extracting oil using two traditional oil processing units each. The oil is already used by local community of Serthi *gewog* for dietary consumption since long time and also as substitute to edible oil. Most of the local people of Khanduphung and Monmola use residues as manure and food for cattle.

However the effect of this residue is still unknown. Some of the households from Serthi *gewog* were been exchanging half a litre of seed oil with 5 kilograms of rice (barter system) with the people of Langchenphu *gewog* under Samdrup Jongkhar. Local people use oil on the neck of oxen before ploughing fields. The same technique was used by the people of Serthi *gewog*.

### Conclusion

*P. confertiflora* is found in small region of the country. The present research work which is exploratory in nature though there was limited research done about this plant revealed that only handful of local community were survived with ethnobotanical uses and traditional method of oil extraction of *P. confertiflora* in Serthi *gewog*. The extraction of oil and its uses have been transmitted over one generation to another. They extract oil only during winter season. Therefore, it may be recommended to extract oil using oil extracting machine atleast installed one in each of the village.

### Acknowledgements

We would like to acknowledge the local informants of Khanduphung, Minjiwoong, Serthi and Monmola of Serthi *gewog*, who gave us necessary information regarding this plant. Also our heartfelt appreciation goes to the local people of these villages who are still practicing this traditional knowledge in extraction of seed oil from *P. confertiflora* and its uses. We would like to thank *Gup* (*gewog* head man) and *Mangmi* (assistant to *Gup*) of Serthi *gewog* who rendered their support to us.

### References

- Annual Dzongkhag Statistics (2010). National Statistics Bureau, Dzongkhag Administration, Samdrup Jongkhar.
- Choudhary, K., Singh, M., and Pillai, U. (2008). Ethnobotanical survey of Rajasthan-An update. *American-Eurasian Journal of Botany*, 1(2), 38-45.
- Grierson, A. J. C., and Long, D. G. (1984). *Flora of Bhutan : including a record of plants from Sikkim. Volume 1. Part 2*. Edinburgh: Royal Botanic Garden.
- Hoareau, L., and DaSilva, E. J. (1999). Medicinal plants: a re-emerging health aid. *Electronic Journal of Biotechnology*, 2(2), 3-4.
- Kotoky, R., Pathak, M. and Kanjilal, P. (2007). Physico-chemical characteristics of seeds oils of some *Litsea* species found in North-East India. *Natural product radiance*, 6(4), p.297-300.
- Matsushima, K., Nemoto, K., Minami, M., Delma, D., Thapa, L., Nakano, M., and Masuda, M. (2007). Investigation on wild edible plants and their traditional knowledge in Eastern Bhutan. *Journal of the Faculty of Agriculture-Shinshu University*, 43.
- Mughal, M. H., Saba, S. P. S., and Iqbal, M. (1999). Drumstick (*Moringa pterygosperma* Gaertn.): a unique source of food and medicine. *J. Econ. Taxon. Bot*, 23, 47-61.
- Panda, H. (2006). *Cultivation and Utilization of Aromatic Plants*. Delhi, Asia Pacific Business Press.