



Identification and Documentation of the Plant Species Used As *Daatun* (Tooth Brushing Stick) By the Rural Communities in Kullu District, Himachal Pradesh

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Abstract

People living in the rural areas of Himalaya have a unique knowledge system to live in harmony with nature since time immemorial. They had a very specific knowledge system to manage or maintain different things in their day to day life in which oral hygiene is the one. Traditionally, various plant species were used as *daatun* (tooth brushing stick) to maintain oral hygiene and some are still being used by the native communities in different parts of the country. The current study was carried out in the Kullu district of Himachal Pradesh to document the plant species used as *daatun*. A total of 13 plant species belonging to 13 genera and 9 families with a dominance of 9 tree species and 4 shrub species have been documented. Rosaceae is the dominant family with 3 species such as *Malus pumila*, *Prunus domestica*, and *Prunus cerasoides*. Documentation of these plant species used by the natives to maintain oral hygiene will also be helpful for pharmaceutical agencies to develop dental care products in the future. It will also be helpful for the economic development of hill communities of the region.

Keywords: Traditional Knowledge, Hygiene, Plant, Kullu, Himachal Pradesh.

Introduction

Himalaya is one of the most important natural regions of the Indian subcontinent due to its geography and biology (Johnsingh et al., 1998). Due to its geography, physiology, topography, and ecological zones, it is regarded as a treasure of biological and cultural diversity. The Indian Himalayan Region (IHR) stretching from Jammu and Kashmir in Northwest to Arunachal Pradesh in East between latitudes 27°-38°N and longitudes 72°-97° E, spreads over in a huge crescent of 2500 km area of 236,000 km² (Valdiya, 1980). IHR is rich in biodiversity because it is comprised of tropical, subtropical, temperate, sub-alpine, alpine and Tundra ecosystems/biomes. This entire area represents a unique and socio-economical important biodiversity (Samant, 1998). The major population of the region resides in rural areas. It provides various kinds of important bio-resources to the natives like; medicine, food/edible, fuel, fodder, timber, fiber, fragrances, food flavors, cosmetics, emulsifiers, dyes, gums, plant growth regulators, pesticides, etc. All these bio-resources are utilized by them to fulfill their day to day needs. The traditional practices of rural

areas play an important role in the primary health care system (Srivastava & Mishra, 2009). Himachal state is an ecologically fragile hotspot for a rich variety of biological resources that sustains the life of living beings (Khan *et al.*, 2013). This state includes the parts of Trans and Northwest Himalaya and also supports a representative, natural, unique and socio-economically important biodiversity (Samant *et al.*, 2007b). Inhabitants of native communities of Himachal have a vast knowledge of plant species used for medicinal purposes in the region (Gupta *et al.*, 2010). The Traditional Knowledge System (TKS) of a particular region act as a catalyst to protect the community culture by transferring diverse indigenous knowledge of the native people from one generation to another (Kumar *et al.*, 2013). The proposed study will be conducted on the toothbrush plants of the Kullu district, which are used as *daatun* by the rural communities of the district. Traditionally, it is used for cleaning teeth (Bansal & Veerasha, 2013). For this purpose, young and fresh twigs are collected from the plant and is cleaned with the help of a knife and water and ready to use (Singh *et al.*, 2013). These chewing sticks contain various natural ingredients, which are good for oral health (Malik *et al.*, 2014; Kshirsagar & Jareen, 2017). Documenting the indigenous knowledge through ethnobotanical studies is important for the conservation of biological resources as well as their sustainable utilization (Deka & Nath, 2014). This study aims to document the toothbrush plants and also integrate traditional knowledge with modern dental care practices to formulate their sustainable utilization. No such studies related to toothbrush plants have been conducted and documented from the region. That's why an attempt has been made to explore and document the traditional uses of some of the plants used by the native people for maintaining their oral health.

Methodology

The remote villages are named as; Burwa, Shanag, Kalga, Bhaliyani, Jathani, Faryadi and Anni from January 2019 to October 2019 were surveyed. The data were collected through interviews and a questionnaire survey of informants who had knowledge on the plants. The informants were consisting of local knowledgeable persons, elderly women, and community herb practitioners. The local dialect i.e. *pahadi* or Hindi language was used during the survey for interaction with native people. These were some of the tools used for gathering data on traditional practices. Information on the local name of the plant, plant part used and its mode of utilization were gathered. The specimen of species was collected and identified with the help of local and regional floras etc. (Chowdhery & Wadhawa, 1984; Dhaliwal & Sharma, 1999). The botanical name of the plants and their families were validated by using The Plant List database (The Plant List, 2020). The indigenous uses are based on the surveys and this information also has been updated with the help of existing secondary literature.

Results and Discussion

A total of 13 plant species used for oral hygiene, belonging to 13 genera and 9 families with a dominance of 9 tree species and 4 shrub species have been documented. Among all families most species belonging to Rosaceae. Rosaceae is the dominant family with 3 species such as *Malus pumila*, *Prunus domestica*, and *Prunus cerasoides*, followed by Anacardiaceae (2 species), Rutaceae (2 species), Myrtaceae (1 species), Lamiaceae (1 species), Juglandaceae (1 species), Acanthaceae (1 species), Malvaceae (1 species) and Fabaceae (1 species). Among the reported plants young twigs were the dominant part (60%), followed by leaf (27%), and bark (13%) showing in Fig. 1. All these plants were used traditionally as a toothbrush for cleaning/for scouring teeth. Many rural people still start their day with using these traditional methods for their oral hygiene. It is used by chewing the end of the *daatun* stick up to one inch and chew until the twigs shreds into bristles which is also documented by Bhambal *et al.*, 2011. Now this chewed twig is used for rubbing or cleaning the teeth. This conventional method is best to maintain oral hygiene. Traditionally, it is an effective practice in fighting germs and also naturally preventing plaque.

Table 1. List of tooth brush plants used by the native community of the Kullu district, Northwestern Himalaya

S. No.	Botanical Name	Local Name	Family	Habitat	Part Used	Uses
	<i>Citrus limon</i>	Galgal	Rutaceae	T	Leaf	Leaves are used for cleaning teeth in the morning
	<i>Hibiscus rosa sinensis</i>	Gudhal	Malvaceae	Sh	Twigs	Young twigs are used to clean and whitening teeth (Hazarika et al. 2018)
	<i>Justicia adhatoda</i>	Basuti	Acanthaceae	Sh	Twigs	Young twigs are used to clean and whitening teeth
	<i>Juglans regia</i>	Akhrot/ Khod	Juglandaceae	T	Bark, Leaf	Bark and leaves are used for scouring teeth (Kumar & Choyal, 2013)
	<i>Malus pumila</i>	Seb/Seu	Rosaceae	T	Twigs	Young twigs of this plant is used by the inhabitants for cleaning teeth
	<i>Mangifera indica</i>	Aam	Anacardiaceae	T	Twigs	Young twigs are used by the native people for cleaning teeth
	<i>Pistacia integerrima</i>	Kakar-singi	Anacardiaceae	T	Leaf	Leaves are chewed to check toothache
	<i>Prunus cerasoides</i>	Pajja	Rosaceae	T	Twigs	Twigs are used for scouring teeth
	<i>Prunus domestica</i>	Plum/Palam	Rosaceae	T	Twigs	Twigs used for cleaning teeth
	<i>Psidium guajava</i>	Amrud	Myrtaceae	T	Leaf, Twigs	Leaves and twigs are used for scouring teeth
	<i>Robinia pseudo-casia</i>	Kikar	Fabaceae	T	Bark	Powdered bark recommended for toothache
	<i>Vitex negundo</i>	Banna	Lamiaceae	Sh	Twigs	To clean teeth, pyorrhea, gum inflammation and other dental problems
	<i>Zanthoxylum armatum</i>	Tirmara/ Timru	Rutaceae	Sh	Twigs	Twigs are used for cleaning teeth (Kumar, 2014; Kumar, 2018).

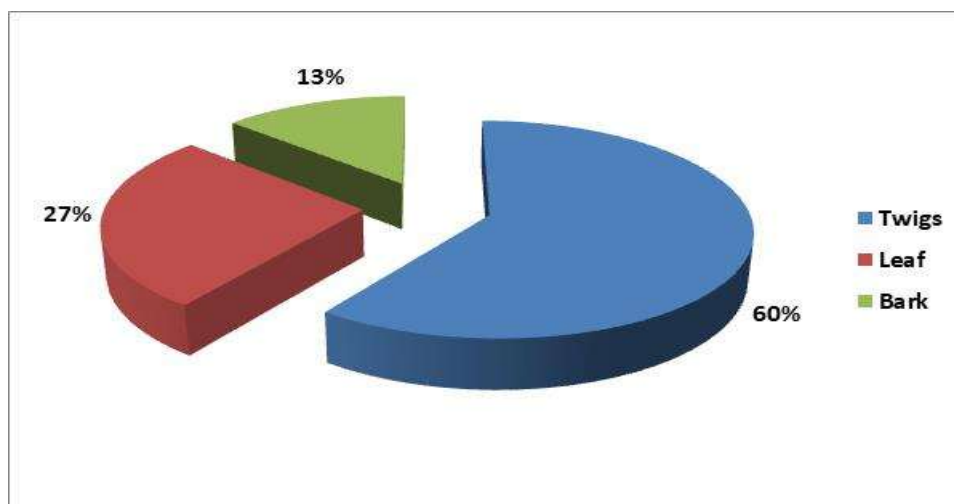


Fig. 1. Percentage of plant parts used as toothbrush

Conclusion

This study is the first record of a traditional use of tooth brushing plants by the rural communities in Kullu district of Himachal Pradesh. Such kind of knowledge is in the custody of local elderly people and herb practitioners in the region. This study assessed the traditional knowledge of 13 promising plants in the remote areas used by the natives to maintain oral hygiene. It has been noticed that there is a continuous decrease in the use of these plant parts in the young generation due to the introduction of new modern toothbrushes. Documentation of these specific plants will act as a cue to the pharmaceutical industries and also used as a baseline for future study. It has been also observed that the livelihood system of these rural villages is getting techno-savvy and the native people are moving away from natural resources. Urbanization and unsuitable harvesting of these plant resources in the valley are facing severe threats. Therefore, documentation of such kind of knowledge is very useful for future generations and can be used for botanical and pharmaceutical research in the future.

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