

# Common shade trees of large cardamom and its ethnobotanical studies in Sikkim and Darjeeling, India

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## ABSTRACT

In this study we presented common shade trees of large cardamom along with its ethnobotanical observation in Sikkim and Darjeeling. Altogether 15 trees belonging to 12 genera and 11 families were identified as the commonly used shade trees in large cardamom plantation field. Ethnobotanical information of this 15 tree species were also compiled and documented. The scientific name, local name, common name, family, flowering time, parts use and uses of each trees have been enumerated.

**Key words :** Darjeeling, Ethnobotany, Large cardamom, Shade tree, Sikkim.

## Introduction

Ethnobotany is the study of the knowledge and the use of plants in primitive societies in the past and present. It deals with the acquired knowledge system about the use of the biological resources among various human communities living close to nature. The term 'Ethnobotany' was first coined by Dr. John W. Harshberger in 1895. It comprises the two Suffixes, *Ethno*-meaning science of races and *Botany*-meaning science of plants. Study and research on ethnobotanical studies have become an indispensable subject matter not only for conserving biodiversity or to find new potential uses of plants for future, but also to protect the rights of the indigenous people and their traditional knowledge of ethnobotany (Purbashree *et al.*, 2012). In recent times the demand for medicinal and aromatic plants has increases rapidly in the global market. India is known for rich repository of biological wealth having more than 17,500 wild plant species and these 4,000 species have medicinal values (Sharma *et al.*, 1997) and it play an important role in human life.

During the last few decades, there has been an increasing interest in the study of medicinal plants and their traditional use in different parts of the world (Talukdar & Talukdar, 2005; Goswami *et al.*, 2010; Kumar *et al.*, 2011; Talukdar, 2001). Sikkim and Darjeeling being an integral part of eastern Himalaya known as one of the mega hot spot zones of the country where medicinal plants and the folk medicinal practices using them are quite common among all ethnic communities. Sikkim is situated between 27° 04' to 28° 07' 48'' N latitude and 88° 00' 58'' to 88° 55' 25'' E longitude on the southern slope of the eastern Himalayas with a total geographic area of 7096 sq km. Darjeeling Himalaya is situated between 87°59' - 88°53' E and 28°31'-27°13' N in the Eastern Himalayan region of India. It has an area of 3,149 sq km. In this area considerable number of medicinal plants are collected and utilized to cure different ailments by the rural people (Sharma, 2013; Yonzon & Mandal, 1982; Bhujel *et al.*, 1984; Rai *et al.*, 1998).

Large cardamom (*Amomum subulatum* Roxb.), a member of the family, Zingiberaceae under the or-

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der Scitamineae is the main cash crop of sub-Himalayan state of Sikkim and Darjeeling district of West Bengal (Gudade *et al.*, 2013). Large cardamom is a sciophytic crop. It is noticed that heavy shade or less shade hinders crop growth and production. About 50% shade is found ideal. The lopping of branches of shade trees is very important and should be done before onset of monsoon during June – July. But at the same time over-exposure to direct sunlight causes yellowing of leaves. Therefore judicious shade management is very important for good growth, timely flowering and for better crop.

## Materials and Methods

The present work is an outcome of the field survey from 2010-12. Information was documented by using Participatory Rural Appraisal (PRA) techniques. Extensive and intensive field surveys were conducted in different seasons during the study period. Interviews were carried out to obtain primary information on the use medicinal plants with their ver-

narular name, parts used and mode of preparation. Secondary information was collected by following published research papers, books and journals related to present study (Sharma and Sharma, 2010, Deorani and Sharma, 2007, Gurung, 2002, Rajbhandari, 2001, Sarma, 2006-2007, practicalplants.org/wiki/viburnum\_erubescens).

## Results and Discussion

In the present study, 15 trees belonging to 12 genera and 11 families were identified as the commonly used shade trees in large cardamom plantation field. The botanical name, local name, common name, family and flowering time of each species has been enumerated in Table 1. Ethno botanical information of this 15 tree species were also compiled and documented. The rural communities of Sikkim and Darjeeling use these plants in the forms of decoction, juice, powder and paste. Among the plant parts, bark and leaves have been used most frequently. The wood of some of the trees are very hard and used for making furniture, door, window and

**Table 1.** List of common shade trees of large cardamom

S. No.	Scientific name	Local name	Common name	Family	Flowering time
1	<i>Albizia lebbeck</i> (L.) Benth.	Hario Siris	Lebbeck Tree	Mimosaceae	June
2	<i>Albizia odoratissima</i> (L.f.) Benth	Kalo Siris	Black Siris, Fragrant Albizia	Mimosaceae	April-May
3	<i>Albizia procera</i> (Roxb.) Benth	Seto Siris	White Siris	Mimosaceae	August-September
4	<i>Alnus nepalensis</i> D. Don	Utis	Alder	Betulaceae	October-December
5	<i>Edgeworthia gardneri</i> (Wall.) Meisn.	Argeli	Paper Bush	Thymelaeaceae	November-January
6	<i>Erythrina arborescens</i> Roxb.	Phaledo	Himalayan coral bean	Fabaceae	August-October
7	<i>Erythrina stricta</i> Roxb.	Aule Phaledo	Coral tree	Fabaceae	March-April
8	<i>Eurya japonica</i> Thunb.	Jhingani	Japanese eurya	Theaceae	February-March
9	<i>Exbucklandia populnea</i> Roland W. Brown	Pipli	Pipli Tree	Hamamelidaceae	May-July
10	<i>Macaranga denticulata</i> (Blume) Muell-Arg.	Malito	Blistery Macaranga	Euphorbiaceae	April-June
11	<i>Maesa chisia</i> Buch.-Ham. ex D. Don	Bilaaune	Mi xian du jing shan (Transcribed Chinese)	Myrsinaceae	March-April
12	<i>Schima wallichii</i> (DC.) Korth.	Chilaune	Needle kung	Theaceae	April-May
13	<i>Symplocos recemosa</i> Roxb. Chamlane	Kharane,	Lodh	Symplocaceae	November-February
14	<i>Terminalia myriocarpa</i> Van Heurck & Mull. Arg.	Panisaj	East Indian Almond	Combretaceae	August-September
15	<i>Viburnum erubescens</i> Wall. ex DC	Asare	Reddish Viburnum	Caprifoliaceae	April-May

handle for agricultural tools. Large cardamom agroforestry system not only plays an important role in biodiversity conservation but also support conservation of trees having ethnobotanical importance. All natural resources and related knowledge are very important.

### Enumeration

The ethnobotanical information of 15 plant species was collected and is enumerated below in alphabetical order.

#### 1. *Albizia lebbbeck*

Parts used: Leaves, bark, flowers and seeds.

Uses: The bark is bitter, astringent and aphrodisiac. Bark powder mixed with bulb paste of *Allium sativum* and Goat milk is given to cure joints pain. Decoction of bark is used to cure cough, leucoderma, skin diseases, piles, excessive perspiration and bronchitis. Infusion of flowers is used to treat asthma. The seeds paste is useful against seminal weakness, piles, diarrhoea, tuberculosis and leprosy. Bark powder is useful in ulcers. Leaves remedy for night blindness.

#### 2. *Albizia odoratissima*

Parts used: Leaves, bark, flowers or flower buds.

Uses: Decoction of bark is used to treat ulcers, insomnia and cough. Flowers or flower buds are effective in insomnia and felling of constriction in the chest. The leaves boiled in butter are use as remedy for cough.

#### 3. *Albizia procera*

Parts used: Leaves and bark.

Uses: Poultices of leaves is used to cure ulcers. The decoction of bark is used in rheumatism and haemorrhage. Bark paste is applied to backache and bark juice is useful against intestinal diseases.

#### 4. *Alnus nepalensis*

Parts used: Leaves, barks and stem.

Uses: Leaf paste is applied on cuts and wounds. Bark powder is used to treat burns. Decoction of root bark is used against diarrhoea and dysentery. Stem is used to make furniture, door, window and handle for agricultural tools.

#### 5. *Edgeworthia gardneri*

Parts used: Root and stems.

Roots paste is used against food poisoning. Juice of

root and stem is used for eye disorder. Stem and branches are used to make handle for agricultural tools.

#### 6. *Erythrina arborescens*

Parts used: Leaves and bark.

Uses: Tender leaf juice (2-3 drops) is put in the ear to get relief from earache. The bark powder with honey is taken against asthma and leprosy.

#### 7. *Erythrina stricta*

Parts used: Leaves bark and flowers.

Uses: Decoction of the bark is used in biliousness, rheumatism, fever, leprosy, itch, epilepsy and flowers are antidote to poison.

#### 8. *Eurya japonica*

Part used: Stem

Uses: It is used to make furniture, wood works etc.

#### 9. *Exbucklandia populnea*

Part used: Stem

Uses: The wood is very hard and is used to make furniture, door and window.

#### 10. *Macaranga denticulata*

Parts used: Leaves.

Uses: Decoction of the leaves has been used to cleanse wounds.

#### 11. *Maesa chisia*

Part used: Leaves.

Uses: Leaf juice is used to treat ringworms.

#### 12. *Schima wallichii*

Parts used: Bark, fruit and stem.

Uses: Bark juice is taken against gastritis, fever, stomach pain and is also applied on skin cracks. The decoction of the bark is applied over the sprain and bone fracture. The fruit paste is applied on dog bite, ringworms, wounds and poisonous bites. The wood is very hard and is used to make furniture, door, window and handle for agricultural tools.

#### 13. *Symplocos recemose*

Part used: Stem bark

Uses: Decoction of stem bark is taken against menstrual disorders and leucorrhoea. The wood is used to make furniture, door, window and handle for agricultural tools.

#### 14. *Terminalia myriocarpa*

Part used: Stem bark, stem and root

Uses: Bark juice or paste is applied on cuts and wounds. Bark juice is taken against constipation. The wood is very hard and is used to make furniture, door, window and handle for agricultural tools. Root is used for preparing handle for agricultural tools.

#### 15. *Viburnum erubescens*

Parts used: Roots and stem

Uses: The juice of the roots is used in the treatment of coughs. Stem is used for preparing handle for agricultural tools.

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