

Indigenous brooms used by the aboriginal inhabitants of Nilgiri Biosphere Reserve, Western Ghats, India

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The Nilgiri Biosphere Reserve (NBR) part of the Western Ghats was surveyed to list out the natural brooms made with plant species used by the indigenous communities. A total of 18 plant species were recorded as a source of brooms in the NBR from seven communities. Of which the family Arecaceae was dominant with 3 species. The most common wild plants that are used for broom making in NBR include: *Phoenix loureiroi* Kunth var. *humilis* S.C. Barrow, *Sida acuta* Burm.f., *Parthenium hysterophorus* L. and *Dodonaea angustifolia* L.f. Four species, viz. *Cupressus lusitanica* Mill., *Brassica juncea* (L.) Czernj., *Cocos nucifera* L. and *Areca catechu* L. are cultivated along the roadsides, farm fields and village surroundings. *P. loureiroi* var. *humilis* is commercially exploited in the entire biosphere reserve for broom making. The use of *P. hysterophorus*, noxious weed, as a broom, is interesting to note in the day to day life of indigenous communities.

Keywords: Aboriginal inhabitants, Nilgiri Biosphere Reserve, Traditional brooms, Western Ghats

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Introduction

The consumption, management and valuation of wild plants are central aspects of traditional knowledge in many human communities. Among potential uses of plants, those related to medicine and foods have central importance because they are essential to human survival¹. Indigenous forest dwelling communities have accumulated a rich knowledge on the uses of various wild forest resources and forest products over the centuries. Their dependence on nature has developed knowledge which ultimately reflects in their traditional culture, religion, belief and folklore².

Cleaning of houses and courtyards is a daily activity in most households in the Indian subcontinent and is almost ritualistically followed in many communities. The brooms are traditionally made by plant species as a general practice. It has been used for centuries to sweep caves, cabins and castles. Tree branches and young twigs of herbaceous plants were often used to sweep the floor and clean the ashes from the fireplaces³. Sometimes crude brooms like straw,

hay, fine twigs or corn husks were used by tying with thread or plant fibre for easy handling. With modern appliances made of metal and plastics making inroads into daily life the natural brooms are being replaced. However, in some places, where technology is unavailable or deficient and the bioresources are easily available, the traditional methods are still widely used⁴.

India is rich in ethnic diversity and traditional knowledge, having diversified aboriginal groups of 537 tribe communities and the only country in the world with an unbroken, living vibrant tradition of crafts⁵. The Nilgiri Biosphere Reserve (NBR) is the first Biosphere Reserve in India, situated in the southern part of the Western Ghats and spread over the three southernmost states of India. The entire landscape is home to unique flora and fauna, and also indigenous tribal communities like the *Irulas*, *Kurumbas*, *Todas*, *Soligas*, *Nayakas*, *Paniyas* and *Kotas*⁶. Most of these communities live in close vicinity of forests from plains up to 2200 m. They use many plant species for their daily sustenance and livelihood needs.

Each region and community has their unique techniques and choice of species in the manufacture

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of household implements. Brooms are one of the highly used tools in a household and exist in many forms. They may be soft and hard brooms, big and small brooms, which are made depending on the specific requirements and also the available resources. According to their use, different names are given to them (yard broom, home broom, threshing-floor broom, etc.)⁷. Large quantities of brooms are used in India annually and most are made of grasses, palms and bamboos. Broom making is an important forestry enterprise in several parts of the country⁸ and also an important source of income and provide rural employment to local communities⁹. Ethnobotanical studies on plant materials other than food and medicine are scanty¹⁰; however, studies on ethno-taxonomy for food yielding plants and indigenous medicine have been largely conducted in the NBR¹¹⁻¹⁴. The objective of our study is to gather details on the materials used for indigenous brooms by the indigenous community residing in NBR.

Methodology

Field data were collected during the period of November 2008 to August 2009 using non-structured interviews from tribal informants. The informants belonging to the indigenous groups of *Paniya*, *Irula*, *Kurumba*, *Kurichiya*, *Kattunayaka*, *Badaga* and *Soliga* have lived in the region for hundreds of years. Data on plants, viz. botanical names of plants, their family names, common names, the parts used and their life forms were collected and photos of the plant materials used in broom making were taken. The collected specimens were confined with the herbarium specimens available in the Keystone Foundation, Nilgiris, Tamil Nadu, India.

Results and Discussion

Eighteen plant species belonging to 18 genera and 14 families were recorded for broom making in the NBR area by the indigenous community (Table 1). Of these, four plants belong to monocots, one to gymnosperms and the rest to dicots. *Areaceae* is the dominant family represented by three species, followed by *Asteraceae* and *Euphorbiaceae* families with two species each, the rest of them are represented by a solitary species. Past researchers also reported the *Asteraceae* as a predominant family in several European and west

Asian countries^{4,7}. Brooms made from these taxa are used to sweep habitations, streets and surroundings. *Maclura spinosa* (Roxb. ex Willd.) C.C. Berg (Moraceae), *Bambusa arundinacea* Willd. (Poaceae) and *Lantana indica* Roxb. (Verbenaceae) are used for the collection of grains during threshing. Similar kind of practice were observed in some West Asian and South Eastern European countries, where *Grewia oppositifolia* Roxb. ex Mast. (Tiliaceae), *Hibiscus manihot* L. (Malvaceae) and *Calamintha nepeta* (L.) Savi (Lamiaceae) were used for the collection of grains during threshing^{3,15,16}.

Among the eighteen species found, 11 are distributed naturally in the dry deciduous and the semi-evergreen forests at low elevations, three species are weeds distributed along the roadsides and cultivable lands and the remaining four species, viz. *Cupressus lusitanica* Mill., *Brassica juncea* (L.) Czernj. and *Cocos nucifera* L. and *Areca catechu* L. are cultivated along the roadsides, farm fields and village surroundings. Fifty percent of the brooms are made from young or matured branches of plants, because it can be handled better on the hard and rough surfaces. Whole plants, midrib of leaflets and leaves contributed 33, 11 and 5 percent respectively. Among the life forms, the tree and shrubs contributed six species each and the herbs and climber contributed five and one species, respectively. In the *Irula* community a wide variety of brooms were recorded (12 species) and six species for the *Kurumba* and *Soliga* communities. The most common wild plants that are used for broom making in the NBR include: *Phoenix loureiroi* Kunth, *Sida acuta* Burm.f., *Parthenium hysterophorus* L. and *Dodonaea angustifolia* L. f.

Phoenix loureiroi var. *humilis* S.C. Barrow is a small palm found very common on bare exposed slopes of scrub jungles and deciduous forests from plains to 1200 m and distributed in India, Myanmar, Indo-China and China. The entire leaf is harvested during November to June and used as a broom. Every year more than 350 tones of leaves are harvested from forests of NBR for trade (Rasingam, personal observations). *Sida acuta* is a small herb, commonly found along the wastelands and roadsides which is collected during the rainy season and used as broom locally

Table 1—Plant species used as a source of broom in Nilgiri Biosphere Reserve, Western Ghats

S.No.	Plant Name	Family	Common English Name	Local Name	Name of Communities who use them	Parts Used	Life Forms
1	<i>Acalypha fruticosa</i> Forsk.	Euphorbiaceae	-	Sinnai, Segarai (Ir)	Ir	Whole plant	Shrub
2	<i>Achyranthes aspera</i> L.	Amaranthaceae	Prickly Chaff Flower	Uthirani (Ir)	Ir	Whole plant	Herb
3	<i>Areca catechu</i> L.	Arecaceae	Betel nut	Pakku (T)	Kn & Pa	Midrib of leaflets	Tree
4	<i>Artemisia nilgirica</i> (C. B. Clarke) Pamp	Asteraceae	-	Kambai (Ir)	Ir	Whole plant	Shrub
5	<i>Bambusa arundinacea</i> (Retz.) Willd.	Poaceae	Bamboo		Kurichya, Ir	Matured dry branches	Herb
6	<i>Brassica juncea</i> (L.) Czernj.	Brassicaceae	Mustard	Kadugu (T)	Ir, Ku & So	Whole plant	Herb
7	<i>Camellia sinensis</i> (L.) Kuntze	Theaceae	Tea	Thayilai (Ta)	Ku, Ir & Ba	Dried young branches	Shrub
8	<i>Cocos nucifera</i> L.	Arecaceae	Coconut Tree	Thennai (T)	Pa, Kn & So	Midrib of leaflets	Tree
9	<i>Cupressus lusitanica</i> Mill.	Cupressaceae	Mexican Cypress		Ba	Young branches	Tree
10	<i>Dodonaea angustifolia</i> L. f.	Sapindaceae	-	Virali (Ir)	Ir, To & So	Young branches	Small tree
11	<i>Flueggea leucopyrus</i> Willd.	Euphorbiaceae	-	Ooli soppu (Ku)	Ku	Young branches	Shrub
12	<i>Grevillea robusta</i> A. Cunn. ex R. Br.	Proteaceae	Silver Oak	Savukku-maram (T)	Ba	Young branches with leaves	Tree
13	<i>Lantana indica</i> Roxb.	Verbenaceae	-	Unnichedi (Ir)	Ir	Young branches with leaves	Shrub
14	<i>Ligustrum perrottetii</i> DC.	Oleaceae	-	Koli (Ku, Ir)	Ku	Young branches with leaves	Tree
15	<i>Maclura spinosa</i> (King) C. C. Berg	Moraceae	-	Emmullu, Ommullu (Ir)	Ir	Thorny stem	Liana
16	<i>Parthenium hysterophorus</i> L.	Asteraceae	Congress Grass		Ir & So	Whole plant	Herb
17	<i>Phoenix loureiroi</i> Kunth var. <i>humilis</i> S.C. Barrow	Arecaceae	-	Seemarpul (Ir) Siru Eatchan (T)	Ir, Ku, Pa, To, Kn, Ba & So	Leaves	Shrub
18	<i>Sida acuta</i> Burm. f.	Malvaceae	-	Kalakarandai (Ir)	Ir, Kn, Pa, Ku & So	Whole plant	Herb

Abbreviations: Ir – Irula, Ku – Kurumba, To – Toda, Ba – Badaga, Kn – Kattunayaka, Pa – Paniya, So – Soliga

(Plate 1). This plant finds a high demand in the medicinal plant industry¹⁸. The use of *Sida acuta* as a broom is also reported from the Juang tribe of Orissa, to sweep outside the house as the ground is uneven and rugged¹⁷.

Parthenium hysterophorus (Asteraceae), an annual herbaceous seed propagated toxic weed commonly known as *Chatak Chandi* (Hindi), Congress Weed or Carrot Grass was accidentally brought into India in the 1950's. It came from America along with imported wheat and was first reported from Pune,

Maharashtra¹⁹. The *Irula* people from Neeradi and Bangalapadigai villages in the NBR use the dried *P. hysterophorus* stem as brooms²⁰. After the plant is fully grown, the entire plant is harvested and tied into bundles. It is then sun dried till the leaves fall off and then used as a broom. It is interesting that an introduced weed can be modified to be integrated into day to day life for the past twenty years (Plate 1). *Dodonaea angustifolia* locally called as *Virali* is extensively used in the indigenous villages as a fencing material and broom. The young branches



Plate 1- a. An Irula man making broom from *Sida acuta*; b, c, d, e and f- Brooms made from *Acalypha fruticosa*, *Areca catechu*, *Brassica juncea*, *Parthenium hysterophorus* and *Sida acuta*, respectively.

harvested during the pre monsoon period are tied into bundles and used as a broom. The small branches are neatly arranged in a square shaped wooden frame and tied with fibres which are then used to build walls of traditional bathrooms, and cattle sheds, etc.

Conclusion

Among the 18 plant species, six species, viz. *Phoenix loureiroi* var. *humilis*, *Brassica juncea*, *Parthenium hysterophorus*, *Sida acuta*, *Cocos nucifera* and *Areca catechu* were predominantly used in all villages, the remaining plants were used occasionally. The usage of *Artemisia nilgirica* (C.B. Clarke) Pamp., *Acalypha fruticosa* Forsk., *Ligustrum perrottetii* A. DC. and *Flueggea leucopyrus* Willd. were limited to a few villages. The high diversity of plant species that form an integral part of daily lives of people living near the forests like the indigenous people is often disregarded and given

little importance. The naturally available material is used for food, fodder, construction, medicinal purposes, jewellery, religious ceremonies, making tools, etc. There is very little knowledge on the diversity of the species in use. Many of these species are regarded as 'wasteland species'. The role they play in the ecosystem and the other flora and fauna that are dependent on them for food or shelter is understudied.

Use of naturally available bioresources for daily use necessitates that they also be replenished because of constant use. This means that the know how to make the implement or tool must also exist with the community. Many times practices are dying out because the knowledge of the practice is not handed down and is forgotten. The use of plants as a broom has been used here to highlight the significance of the forests and the natural resources in the lives of indigenous communities. The relatively insignificant broom becomes a very significant product and the knowledge with regard to the species to be used and the technology to manufacture the broom becomes an important part of the cultural tradition of the indigenous community.

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