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Use of participatory method in preparation of inventory of economically and medicinally important plants

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ABSTRACT

Participatory methods are currently used in different research areas, especially for rapid diagnosis of the needs of the local people involved in the study. Thus, these methods were used in *Made Tukum* block of *Kharpundi* village of central India. An Inventory of economically and medicinally important plants was prepared. The need for present work is to know the useful flora of the area and to maintain a record of traditional knowledge of local people. These plant species were photographed, with an emphasis on some phenological characters. Workshop was carried out for local people. On this occasion we presented names and pictures of plants, the residents discussed their economical and medicinal values. Data available from field visits, actual observations and interactions is compiled in tabulated form. People were made aware with utility of these plants & need of conservation of these plants through workshop. The compilation of this information was a way of valuing and recording the local knowledge of medicinally and economically important plants.

KEYWORDS

Participatory Methods, Inventory, Traditional Knowledge, Medicinally Important Plants, Economically Important Plants.

INTRODUCTION

Large areas of vegetation, especially in tropical regions, have been devastated over time, causing drastic changes in habitat structure (Cunningham, 1993). This destruction is frequently found in the dry deciduous forested areas of India, especially in the Gadchiroli district of Maharashtra. Areas covered by native vegetation have suffered from human actions and have been replaced by crops and grazing areas (Sampaio, 1995; Araujo *et al*., 2007). Thus, the local availability and diversity of native species, some of which are endemic to these environments, are reduced by those alterations to the environment (Sampaio, 1995; 2002). A process by which the rural poor are able to organize themselves and through their organization are able to identify their own needs, share in the design, implementation and evaluation of the participatory action (Kuperus,1998).

On the other hand, human activities that directly affect the environment cannot be seen only as negative actions because the people are part of the system and establish relationships with the environment (Araujo *et al.,* 2007). In this sense, as an alternative for understanding how people recognize the environment to which they belong and make use of locally available resources, many times in an unconscious and indiscriminate way, the use of participatory methods in ethnobiological studies has grown overtime and become an important tool in these studies (Sieber *et al*., 2010; Sieber and Albuquerque, 2010).

This study aims to describe the importance of local community participation in developing an inventory of medicinal plants from the *Made Tukum* block of *Kharpundi* village from *Gadchiroli* district of Maharashtra, based on information obtained through participatory methods. We tried to record the strong pressure of use that the native species have undergone, highlighting the importance of dialog between researchers and residents to devise strategies that address the continuity of medicinal practices with the best-known and most used local species. Newly enacted Biological diversity Act, 2002 has created substantial space for the involvement of local people in management and chronicling biodiversity.

MATERIALS AND METHODS

Study area

This study was part of rura1 Naxal affected North East Gadchiroli district of Maharashtra. It lies between 18° 43' and 21° 50' North latitude, and 79° 45' and 80° 53' east longitude it has an average elevation of 217 metres (716 feet). The *Made Tukum* block of *Kharpundi* village from *Gadchiroli* located about 4.2 km from the district head quarter.

Field survey and participation methods

Extensive field visits were conducted during 2008 to 2009 for recording information related to economically and medicinally important plants from study area with local participation. The rural inhabitants and people from adjoining area were interviewed and the information was verified by actual observations in the area. Workshop was also organized for local people in order to participate in documentation of knowledge.

During the field visits photographs of specimen were taken by Nikon L-4 digital camera (Plate 1, Fig 1-20). Plants were identified by using relevant scientific literature (Hooker, 1872-1877; Cooke, 1967; Naik, 1998; Singh and Karthikeyan, 2000; Parrotta, 2001; Yadav and Sardesai, 2002.)

Species selection

Medicinally important species of tree or shrub size that mentioned by people during participation were only selected for the present study (Table1). To confirm the related species, frequent field visits with local knowledgeable people were also arranged.

RESULTS AND DISCUSSION

Knowledge regarding the occurrence and availability of selected species was obtained from the local people through participation either by interview or workshop. Semi-structured interviews were carried out. The same method was followed by Albuquerque *et al*., (2010). During this process six knowledgeable local residents were interviewed to understand the needs and practices related to plant resources with economical, medicinal and other utility. Twenty five people of village participated in workshop. The interview process provided an opportunity to know the community and intimacy to the residents. Album containing names and pictures of these plants was also shown during this workshop. The residents identified the plants through photographs as well as actual field visits and discussed the economical and medicinal values of the plants.

Local residents more frequently mentioned 41 medicinally and / or economically important species. Phenological characters studied and importance of plants to local people was recorded. It is interesting to note that different plants were employed for various purposes by the rural folks and aborigines in the village. It seems that there is a direct relationship between all plants and local people.

Thus, local participation is very important for understanding and diagnosing local problems reflected in environmental issues, planning conservation strategies to preserve these plant resources and enhance the quality of people's life.

According to Siliprandi (2002), activities aimed at rescuing traditional knowledge, especially of medicinal plants, have emerged as a major theme during a series of changes in the way of thinking and acting on the rural environment. The development of these activities has helped to restore the dignity and self-esteem of the populations.

Table 1. Plants selected for the study.

Sr. No	Botanical Name	Habitat	Height	Importance	Used for	Size of flower	Colour of flower
1.	*Cleome viscosa* L.	Annual	up to 1 M tall	M.	Ayurvedic medicine	1	Yellow
2.	*Capparis zeylanica* L.	Perennial	Much spread	E. & M.	Food	4	White
3.	*Cochlospermum religiosum* (L.)	Perennial	3 to 5 M tall	M. and S.	Spiritual	6	Yellow
4.	*Bombax ceiba* L.	Perennial	20 to 30 M tall	E. & M.	Intestinal disorders of Domestic animals	10	Red
5.	*Helicteres isora* L.	Perennial	1-2.5 M tall	E. & M.	Fibre, Antispasmodic, killing of intestinal worms	3	Red
6.	*Tribulus terrestris* L.	Annual	0.3 to 0.60 M	M.	Urinary troubles	3	Yellow
7.	*Maytenus emarginata* (Willd.)	Perennial	2 to 2.5 M	M.	Piles	1	White
8.	*Cardiospermum helicacabum* L.	Annual	0.5 M	M.	Ear-ache	1	White
9.	*Semecarpus anacardium* L.	Perennial	Up to 4 M	E. & M.	Food, Arthritis	1	Yellow
10.	*Butea monosperma* (Lamk.)	Perennial	Up to 5 M	E. & M.	Paper plates, Rough packaging, Holy importance	5	Red
11.	*Dalbergia sissoo* Roxb.	Perennial	8 to 12 M High	E.	Timber	1	White
12.	*Mucuna pruriens* (L.) DC.	Perennial	extensive leaflets	M.	Ayurvedic preparations	4	Pink
13.	*Pongamia pinnata* (L.)	Perennial	7 to 10 M height	E. & M.	Manure, oil, Insecticidal	1	Pink
14.	*Caesalpinia bonduc* (L.)	Perennial	Much branched	E. & M.	Ayurvedic medicines	1	Yellow
15.	*Tamarindus indica* L.	Perennial	Up to 15 M height	E. & M.	Food, Fodder, Manure	2	White
16.	*Acasia nilotica* (L.) subsp. Indica (Benth.)	Perennial	4.5 to 6 M	E. & M.	Food, Fodder, Medicine, Fuel	1*	Yellow
17.	*Terminalia bellirica* (Gaertn.)	Perennial	15-20 M tall	E. & M.	Ayurvedic preparations	1	Yellow
18.	Syzygium cumini (L.)	Perennial	8 to 15 M tall	E. & M.	Food, M., Timber	1	White
19.	*Ludwigia perennis* L.	Annual	2 M tall	M.	Medicinal.	1	Yellow
20.	*Gardenia resinifera* Roth.	Perennial	2 to 3 M tall	E. & M.	Carminative antispasmodic	3	White
21.	*Sphaeranthus senegalansis* DC.	Annual	0.15 to 0.45 M	M.	Medicinal.	1	Blue
22.	*Tridax procumbens* L.	Annual to Perennial	Up to 0.40 M	M.	Leaf juice Haemorrhagic	1	Yellow
23.	*Madhuca longifolia*var. latifolia (Roxb.)	Perennial	13-16 M tall	E. & M.	Plate making, alcohol distilled from corolla	3	White
24.	*Diospyros melanoxylonRoxb.*	Perennial	15 M tall	E. & M.	Bidi making, food	1	White
25.	*Holarrhena pubescens (Buch. Ham.) Wall.*	Perennial	3-4 M tall	E. & M.	Stomach disorders	2	White
26.	*Pergularia daemia (Forsk.) Choiv.*	Perennial	Much spread twiner	M.	Anti-inflammatory properties	1	White
27.	*Evolvulus alsinoides (L.) L.*	Annual	Less than 0.3 M	M. and S.	Medicinal.	1	Violet
28.	*Cuscuta reflexaRoxb.*	Annual	Twiner on higher plant	M.	Stomach disorders of cattle's	1	Yellow
29.	*Solanum virginianum L.*	Annual	Less than 0.5 M	M.	Medicinal.	2	Blue
30.	*Adhatoda zaylanica Medic.*	Annual	1.2-5 M tall	M.	Asthma, leaves fungicidal and insecticidal	3	White
31.	*Andrographis paniculata (Burm. F.)*	Annual	Up to 1M tall	M.	Substitute to Kadecherait, Swartiachirata reducing fever	1	Pink
32.	*Hygrophila schulli (Buch.-Ham.)*	Annual	0.5-1.5 M tall	M.	Medicinal.	2	Pink

Table 1 : Continued...

Sr. No	Botanical Name	Habitat	Height	Importance	Used for	Size of flower	Colour of flower
33.	*Lepidagathis cristataWilld.*	Perennial root stocks	Less than 0.30 M	M.	Dried inflorescence burned with jute, Hair growth	1	Blue
34.	*Rungia repens (L.) Nee.*	Annual	Less than 0.30 M	M.	Medicinal.	1	Pink
35.	*Boerhavia repens(L.) vardifussa L.*	Perennial	Spread up to 0.5 M	M.	Medicinal.	1	Pink
36.	*Jatropha curcas L.*	Perennial	1.5 to 2.5 M tall	M. and E.	Purgative, fish poison	1	Yellow
37.	*Phyllanthus emblicaL.*	Perennial	Up to 5 M Tall	M. and E.	Ayurvedic preparations	1	Yellow
38.	*Ricinus communis L.*	Annual to perennial	Up to 2.5 M tall	M. and E.	Purgative, fuel	1	Yellow
39.	*Curculigo orchioidesGaertn.*	Perennial	0.1 to 0.35 M tall	M.	Ayurvedic preparations	2	Yellow
40.	*Asparagus racemosusWilld.*	Annual to perennial	Much spread climber	M.	Ayurvedic preparations	1	White
41.	*Gloriosa superba L.*	Perennial	leaves 0.2 to 0.6 M	M.	Ayurvedic preparations, easy delivery	8	Red

M-Medicinal importance, E-Economical importance, S-Spiritual importance. Size of solitary distinct flower mentioned in centimeters for non-distinct size of spike or head is given and marked by astrix. Colour of flower dominantly observed when fresh

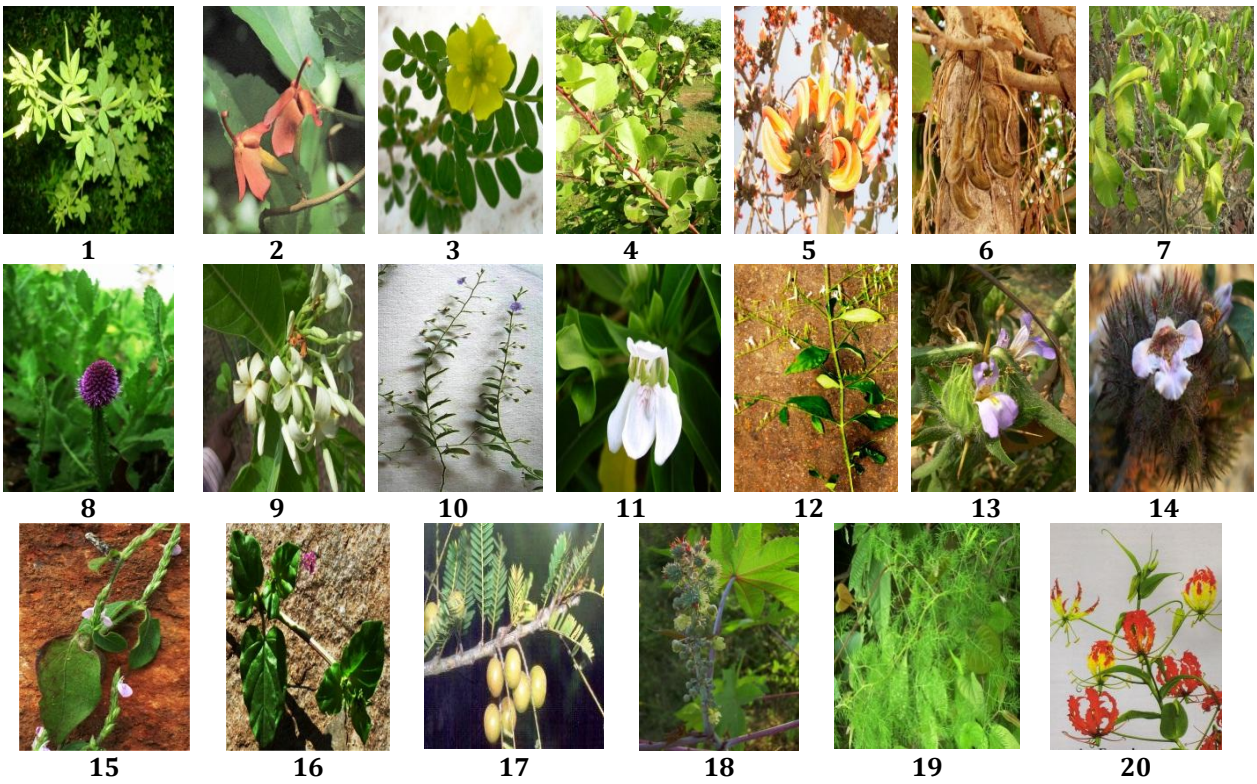

Fig. 1-20: 1. *Cleome viscosa* L., **2.** *Helicteres isora* L., **3.** *Tribulus terrestris* L., **4.** *Maytenus emarginata* (Willd.)., **5.** *Butea monosperma* (Lamk.)., **6.** *Mucuna pruriens* (L.) DC., **7.** *Gardenia resinifera* Roth., **8**. *Sphaeranthus senegalansis* DC., **9.** *Holarrhena pubescens* (Buch. Ham.) Wall., **10.** *Evolvulus alsinoides* (L.) L., **11.** *Adhatoda zaylanica* Medic., **12.** *Andrographis paniculata* (Burm. F.), **13.** *Hygrophila schulli* (Buch.-Ham.)., **14.** *Lepidagathis cristata* Willd., **15.** *Rungia repens* (L.) Nee., **16.** *Boerhavia repens* (L.) var. difussa L., **17.** *Phyllanthus emblica* L., **18.** *Ricinus communis* L., **19.** *Asparagus racemosus* Willd., **20.** *Gloriosa superba* L.

CONCLUSION

From the above data and discussion following conclusions can be drawn,

1) The local people of *Made Tukum* block of *Kharpundi* village still bears important knowledge about the economical and medicinal values of plants which is yet to be explored scientifically hence this area has greater potential for further study.
2) All these plants are of great value in providing livelihood to local people and generating revenue and may contribute to GDP of the country.
3) It is therefore suggested that these utilities of plants should be scientifically screened and people should be trained to cultivate and manage the local flora.
4) The favourable changes in the management of the natural resources, people's participation and facilitation to study and research in the *Made Tukum* may positively influence plant diversity wealth of study area.

Local people from study area have shown major dependence on various plants to fulfil their requirements hence; they should be trained for appropriate methods of proper collection of useful plant parts and conservation strategy for the flora of area.

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