

***Cyperus procerus* Rottb. and other plants used for Mat making in flood plains of Mithila (North Bihar), India**

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Received: 05.05.2017

Accepted: 14.05.2017

ABSTRACT

The flood plains in north Bihar are thronged by a number of invasive weeds that have a negative impact on the local plants. However, people in the area have devised methods for their use in day-to-day livelihood requirements. Quite a good number of these exotic plants now provide a basis of livelihood to the local inhabitants. Aquatic plants growing in the area are fed to the cattle as green fodder and quite a good no. of them are used as raw material for thatching houses and for carving coarse and fine mats that they use as bed. These are also used as blanket for protection against cold during winter season. The present paper describes *C. procerus* Rottb. as one such material that is used as a green fodder, a thatching material as well as a raw source for carving mat in Mithila region of north Bihar. A number of other plants used for mat making in the district have also been enlisted along with durability and price range for the mats carved there from.

Keywords: North Bihar, Flood plains, Mat, *Cyperus procerus*.

INTRODUCTION

Thousands of lentic and lotic water bodies in north Bihar are thronged by a number of invasive water plants that are known for their explosive growth potential. They bring about a decline in the native plant populations and prove a threat to a number of local endangered species. People, however, have devised ways to put them to use for various livelihood purposes (Steven, 2009; Anuradha, 2010; Kumar, 2012; Shalini, 2016; Jha, 2005a,b, 2012, 2015, 2016 and Jha, *et al.*, 2004, 2011, 2012, 2013, 2014a,b, 2016 *etc.*) . If they are not toxic, they can be used as green fodder for animals as well as supplementary food by even human beings. Their other uses could be as thatching material if having sufficient fibrous components and for carving mats, baskets etc. Alternatively, the biomass stored by them is used as cheap source of fuel material. Through their natural cycle they contribute to convert the deep water bodies into shallower ones.

Plants growing in Mithila floodplains are being utilized for staple and subsidiary food, drug, soil stabilization and aesthetic purposes. People are incorporating them in their agricultural pattern to derive optimum productivity out of the exigency of prolonged water loggings (Jha, *et al.*, 2015).

MATERIALS AND METHODS

As a part of study of aquatic plant species in north Bihar, a survey was made on the local uses of invasive water plants in Sadar C.D. block of Darbhanga district. Invasive aquaphytes being used for various purposes in the area were identified. One such aquatic weed being used for mat making was identified as *Cyperus procerus*, locally known as *Bachcha*. Details of the process of using *C. procerus* and other plants used in the area for

carving mats were observed. Information collected have been presented in the form of two tables and one plate containing six photographs.

RESULTS AND DISCUSSION

C. procerus belongs to the family Cyperaceae that is the third largest family in the monocotyledons comprising approximately 104 genera and 5000 species. They have a cosmopolitan distribution and are concentrated in the tropics. Genus *Cyperus* has approximately 600 species. The family plays a vital part in local economies (Simpson and Inglis, 2001). Records available speak of a no. of other *Cyperus* grasses including *C. articulatus*, *C. compactus*, *C. corymbosus*, *C. elatus*, *C. iria*, *C. malaccensis*, *C. radiatus* etc. are also being used for carving mats (Ambasta, 1986).

Above ground parts of the perennial *C. procerus* plants are collected from the wet paddy fields during September-October when the *Agahani Dhan* is also harvested. By this time the field gets dried up and the plant is in its mature stage (Fig 1.) bearing ripened infructescences. The collected parts are dried up under the direct sunlight for 10-15 days and are stored as stacks for use as thatching material and for and carving mats (Fig 2.). Fig 3. shows *Bachcha* parts being woven over a wooden template. Fig 4. shows the process of roping in of a *Bachcha* mat placed over a cot. Fig 5. shows the front view of a *C. procerus* mat on which colour has been applied. Fig 6. shows the back portion of the same.



Fig. 1: *Cyperus procerus* plants under field condition



Fig. 2: Dried stacks of *C. procerus* stored for weaving mat



Fig.3: Weaving of mat over a wooden template



Fig 4. Weaving of mat- next stage



Fig. 5: A fully carved mat-front view



Fig. 6: A fully carved mat-back portion

Generally, the people belonging to the *Chaupal/Khatbe* caste perform this job. The normal size of the mats is 1.80-2.00m length and 0.90-1.35m breadth. The tough stems of *C. procerus* are generally split into three parts and are then woven as mat. However, as per requirement they also carve the mats of bigger sizes which were earlier used for accommodating the *baratis* during marriage ceremony.

Quality wise, it is the *Mothi* mat that is considered to be of the best quality. Deep Godhanpur village in Sukhet Panchayat near Deep railway station in Madhubani district is held as a major hub of *Mothi Patiya*. It is generally the Muslim population here that performs this business. The culms of *Mothi* (*Cyperus rotundus*) are harvested 2-3 times but are used exclusively for mat making. However, those of *C. procerus* are also used as fodder as well as thatching material.

Table 1
Details of weaving of a *Cyperus procerus* Mat

Sl. No.	Stages / Parameters	Duration / Size etc.
1	Local Name	Bachcha/Bachwa
2	Time of collection of raw materials	September- October
3	Average size of a mat	1.80m to 2.0m
4	Time taken for weaving a mat	9 to 10 hours
5	Template used	Locally called as <i>Partaan</i> , made of <i>Shisham</i> (<i>Dalbergia sissoo</i>)/ <i>Gamhari</i> (<i>Gmelina arborea</i>)
6	Days required for drying the raw material	10-15 days
7	Main population category involved in the business	Chaupal/Khatbe/Mallah
8	Market price	Rs-500-600/- per piece.
9	Investment made	Rs-300-400/- per piece
10	Profit earned	Rs-200-250/- per piece
11	Durability of the mat	3-4 years

Gifting a *Mothi* mat to a girl on her marriage is a sacred practice in Mithila region. Practice of gifting the *Bachcha* mat to a daughter at the time of leaving her parental home is adopted as an alternative to *Mothi* mat. Next to *Mothi* mat, in order of priority, is the *Pater*

mat. Bhaptiyahi village near Kosi bridge in Supaul district is a major hub of production and sale of *Pater* mats. It is generally the *Baantar* caste that is involved with this business.

C. procerus is considered to be a cheap housing material in the sense that its thatch, on coming in contact with rainwater, gets glued together, thereby making it last for a longer period of 5-6 years. This makes it an ideal thatch material. It is also used as a green fodder in combination with dry ones like wheat straw and flour husk.

Locally, the mats are called as 'Patiya' or 'Sej'. During winter season these are used as blanket for protection against cold. Nowadays, however, synthetic mats are being used in place of natural ones which are cheaper in price. The same are sold @ Rs.80 to 300 hundred per piece as per size and quality.

Table 2
Other Mats Carved in the Study Area with Reference to Durability and Price Range.

Local Name	Botanical Name/Family	Durability	Price range
1. Taar	<i>Borassus flabellifer</i> (Arecaceae)	1-2 years	Rs-150-200/-
2. Khajur	<i>Phoenix dactylifera</i> (Arecaceae)	4-5 years	Rs-500-600/-
3. Mothi	<i>Cyperus rotundus</i> (Cyperaceae)	6-7 years	Rs.600-800/-
4. Gonari	<i>Oryza sativa</i> (Poaceae)	1-2 years	Rs.150-200/-
5. Pater	<i>Typha</i> sp. (Typhaceae)	2-3 years	Rs-400-500/-
6. Kesaur	<i>Actinoscirpus grossus</i> (Cyperaceae)	2-3 years	Rs-250-300/-
7. Chichorh	<i>Eleocharis dulcis</i> (Cyperaceae)	3-4 years	Rs-300-400/-
8. Kush	<i>Desmostachya bipinnata</i> (Poaceae)	8-10 years	Rss400-500/-
9. Bachcha	<i>Cyperus procerus</i> (Cyperaceae)	3-4 years	Rs-500-600/-

Table 2. provides the details of other mats carved in the study area with reference to durability and price range. Majority of them are aquatic macrophytes like *Cyperus rotundus*, *Oryza sativa*, *Typha* sp., *Actinoscirpus grossus*, *Eleocharis dulcis* etc. Many of these plants are utilized for mat making in other parts of the globe as well (Benazir, *et al.*, 2010 and Tessema, *et al.*, 2013). Fibers present there in make them suitable for paper making (Bidin, *et al.*, 2015). This property makes them ideal raw material for mat making as well. It was with a view to utilize the vast phytomass available in the Mithila floodplains, more particularly the raw materials in the emergent macrophytes, that the Hayaghat based Ashok Paper Mill was opened in Darbhanga district. Lack of proper management led to closure of the mill. However, people do utilize these plants in their own ways and mat making is one such endeavour that is practiced in other parts of the globe as well. Leaves of two monocot trees belonging to the Palm group *i.e.*, *Borassus flabellifer* and *Phoenix dactylifera* are also used for mat making. One hardy herb *Desmostachya bipinnata* (locally called as *Kush*) is also used for carving a mat that is normally used for sitting during worships. *D. bipinnata* generally grows in barren land, gradually turning the same into fertile one. Its above ground parts are used for strengthening the bamboo appliance used in capture fishing. *Kush* mats can easily withstand the rough situation like hot climate and rains. Large sized *Kush* and other mats are generally used for drying grains as well as for sleeping purposes. Mats are also carved from the leaves of *Katara* (*Chrysopogon zizanioides*). Vetiver stalks provide raw material to the *Sikki* art, a major characteristic of the region.

In eastern districts of north Bihar there is a practice of weaving *Sapata* (*i.e.* mat woven from the fibers of *Saun/Patsan* (*Corchorus* sp.)). In the banana growing Katihar-Naugachhia area people carve mats from its pseudostem after the fleshy portion disintegrates.

CONCLUSION

Invasive aquatic weeds do engulf a large area and create a major hindrance by competing for nutrients with a crop like paddy in a low land area. However, people have adapted themselves to such a situation and they harvest the main crop as well as the associated invasive weed like *C. procerus* and put the latter into use for subsidiary purposes like raw source for mat making and/or as an ideal thatch material as well as a green fodder. *C. procerus* provides a fine example of resource management in north Bihar floodplains.

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