Shola, *Aeschynomene aspera* L. used for making indigenous handicrafts revealing traditional art needs conservation

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Received 10.10.12, revised 03.06.13

**Keywords:** *Shola, A. aspera*, Handicrafts, Indigenous knowledge, *Malaker*

**IPC Int. Cl.:** A61K 36/00, B01, D01

*Shola, Aeschynomene aspera* L. is an aquatic plant growing wildly in water logged areas of wetlands, but presently has been threatened one listed in Red list of threatened species by IUCN. Culturally, it has great importance in society because *shola* pith is obtained from this plant. *Shola* pith has certain traits such as milky white colour, softness, malleability, suppleness, sponginess and based on these attribute, *shola* pith is used making a variety of crafts which occupy a unique position in India’s heritage of handicrafts. A particular community popularly known as *Malaker* is exclusively involved in making such beautiful crafts, with unique skill and artistic secrets by profession and earns their livelihoods. Preparation of these handicrafts requires specific techniques within different methods such as *Malar Kaj* and *Daker Kaj*, with particular tools used. These handicrafts are not only beautiful but also fetch high price during festive seasons. This article has documented all the details of indigenous knowledge based techniques used for making such beautiful handicrafts, along with the potential of wildly growing aquatic plant in the purpose of its conservation and thereby keeping Indian heritage alive.

*Shola* is an aquatic annual herb (Fig. 1) popularly known as *Phool shola* in Bengal, with scientific name *Aeschynomene aspera* L. belonging to the family Leguminosae. It is found growing wildly in water logged areas, but presently has been threatened one listed in Red list of threatened species; no conservation programme is undertaken till date. Culturally, it has great importance in society because of heavenly milky white colour of *shola* pith which brings suggestive of purity, sanctity and sacredness into people’s mind and these attributes altogether promise to woo their heart. Common householders use hanging the decorative items made of *shola* pith inside the sacred room as a symbol of sanctity.

Owing to these traits, umpteen items of craft made from *shola* pith occupy a unique position in India’s heritage of handicrafts. *Solar kaj*, as popularly known in Bengal, meaning objects/items made from *shola* pith is treated as a traditional handicraft. A variety of crafts is made, based on exclusively indigenous knowledge blended with unique skill as well as craftsmanship, which has its genesis involved in the rituals and festivals. The rituals and festivals of any society is an arduous platform which is not only the epicenter of emanation of such artistic crafts but also support 3Ps: patronage, promotion and propagation of the creativity of such traditional crafts manifesting unique craftsmanship. Like other crafts, *shola* pith crafts engage many people for earning their livelihood too. Any art of craft based on traditional knowledge is unique because it belongs to grass root artisans. A large number of artisans/craftsmen belonging to *Malaker* community are dependent to run their livelihoods by profession in making such unique crafts which are worthy of beauty. The particular community from generation to generation is engaged by this profession, with unique skill and artistic secrets involved in manufacturing *shola* handicrafts getting transmitted from older members to younger ones. This skill of art embodies with innate craftsmanship of particular community whose skill manifests a pure indigenous aura. In course of time the *shola* pith crafts has got recognized everywhere for its beauty, eco-friendly and superb craftsmanship. However, once the bit of such indigenous knowledge is transferred from community they lose their control over the information since mechanisms are not enough to protect this right. With this view of

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of shola plants from water logged areas.

Most of them are economically belonging to OBC (other backward classes) in respect of Indian constitution. Most of them are economically poor. Unlike SC (Scheduled Caste) category in respect of Indian constitution, those are both economically and educationally poor. Unlike Malaker community, they represent a variety of castes. Usually, they dwell around the large scale water logged wetlands and earn their livelihood by collection of resources like shola plants, shapla (aquatic plants used as leafy vegetables belonging to the family Nymphceaeae), fishes and other biotic resources like crabs, mollusks, etc. from wetlands.

**Materials and methods**

**Collection & documentation of information, and visit of waterlogged areas**

A study was conducted among artisans/craftsmen of Malaker community who are involved in making different items/objects of craft made from shola pith. For this purpose, a group of artisans/craftsmen was interviewed and interacted to collate their traditional wisdom pertaining to craftsmanship which was further verified by other group of Malaker. Eventually, a strong knowledge based information was collected, manifesting traditional knowledge of craftsmanship which inherits through generations.

A field study was conducted to get the present status of shola growing wetlands including water logged areas and recorded botanical features of shola plants. The present study also photographed the procedure of harvest of shola plants from water logged fields and performance of harvesters involved in collection and trimming of shola plants: mostly, women (Figs. 2-23) (Fig. 2) are engaged in uprooting of shola plants from their waist height water level, trim the stems by removing roots and branches, make them into 2-3 segments with the help of Hansuli (Fig. 3). The segmented parts are heaped which are able to float due to buoyant property. Sometimes, the entire shola plants are brought into home after being uprooted from deep water logged areas. In home, usually any able member of family can take part in trimming of stem, make them into 2-3 segments with the help of Bati (Fig. 4) while half -seating in posture with comfort.

**Communities’ involvement**

Two groups of community are involved for two different activities: one community is involved in preparation of varieties of handicrafts made from shola pith and another being engaged for harvesting of shola plants from water logged areas.

The people involved in shola pith craftsman are known as Malaker meaning ‘Maker of garland’. They represent particular community in West Bengal, belonging to OBC (other backward classes) in respect of Indian constitution. Most of them are economically not well and are educationally backward too. Interestingly, their title is still Malaker. In ancient time they occupied a respectable position in society and used to provide wreaths Daker Saaj made of shola pith, which were offered to deities on occasion. They usually prepare garlands made from shola pith for idols of Gods and Goddess, manifesting the beauty of indigenous skill in the purpose of noble causes. Traditionally, people with entire family members are engaged in this activity, particularly in the festive seasons, but become engaged as agricultural and daily wage labours in other times. In West Bengal, this community inhabits in almost every district and about 5000 artisans by profession are involved in this craft activity.

On the other hand, collectors of shola plants usually belong to SC (Scheduled Caste) category in respect of Indian constitution, those are both economically and educationally poor. Unlike Malaker community, they represent a variety of castes. Usually, they dwell around the large scale water logged wetlands and earn their livelihood by collection of resources like shola plants, shapla (aquatic plants used as leafy vegetables belonging to the family Nymphceaeae), fishes and other biotic resources like crabs, mollusks, etc. from wetlands.

**Shola plant: Botany, distribution and ecology**

Shola grows up to 3.0 m tall. Leaves spiral, compound,16 cm long, leaflets sessile, 33-48 pairs, 1.0-1.2 cm long × 0.3 cm broad, linear, obtuse; stipules 1.2-1.3 cm long; inflorescence axillary raceme with 4-6 flowers, peduncles and pedicels hairy; bracts 0.3-0.4 cm long; flower 2.0-2.2 cm long, calyx hispid, valvate, 5; corolla 1.8-2.0 cm long, vexillum glabrous, keel pubescent externally, often indented on both surface; fruit pod with 5-6 cm long; seeds 4-5 numbers with green brown colour.

Shola, A. aspera is believed to have originated in sub-Saharan Africa between Senegal and Sudan. It is widely distributed in the lowlands of western, central, North-eastern and southern Africa. It was introduced into the Philippines and since then has been growing across South and South-east Asia. In West Bengal, it is popularly known as Phool shola and found growing in almost all districts: Murshidabad, Hooghly, Nadia, 24 Paraganas (South and North), Howrah, Burdwan, Birbhum, Midnapore (East and West), Malda, Bankura, Cooch-Behar, Dinajpur (South and North), Jalpaiguri. Shola plant grows wildly in marshy water logged areas, ditches, trenches of paddy fields, fallow...
wetlands and flooded low land areas. It usually gets germinating at the advent of pre-monsoon when fields get moisture. Dormant seeds which remain deposited in the soil get sprouting and take 2.5-3 months to become full grown plant. It has full blooming during August-Octobers. Harvest commences in the field when flowering period is ending with commencement of pods; this is indicative of having desirable maturity of shola pith suitable for decorative works. The portion of shola stem which remains submerged yields quality shola pith having all the important traits such as expanded surface area, milky white colour, malleability, texture, sponginess, luster, softness, and suppleness.

Techniques involved in making crafts
Initially, Segmented shola stems each with 75-90 cm long are allowed having sun drying under bright sunlight for 3-4 days until lush green colour of stems turn to become brown (Fig. 5), which are then ready either for storing or for immediate processing for making decorative items. One bundle containing dry segmented shola stems is known as Jhapi (Fig. 5a) which has 300 pieces and costs around 200 rupees.

Methods
There are two types of method involved in processing of shola pith from stem as; (i) Malar Kaj and (ii) Daker Kaj. Malar Kaj is mentioned to be a crude method that usually does not require quality shola pith and skilled artisan as well. For Malar Kaj, hard brown cover needs not to be peeled off from shola stem during processing. The products of Malar kaj have cheap rate of price and take less time spent for their manufacturing. The shola used for Malar Kaj has its diameter in the range of 2.5-3.8 cm and may not be used for making fashionable items. The entire segment of shola (75-90 cm) is used for processing which develops two types of base materials as Dhari and Sheuli. In preparation of Dhari, artisan keeps shola stem at the horizontal plane of ground, i.e. 90° of vertical body plain on sitting posture, place the sharp edge of the Kat at distant end of the shola stem and run the Kat touching parallel plain of shola stem. Numbers of long thin narrow ribbon shaped sheet (75-90 cm long × 2.5-3.0 cm width × 0.07-0.1 cm thick) are obtained, which is known as Dhari (Fig. 6). Dhari is treated to be the base product which is then used for making of different items of Mala meaning garland which has a variety of shape, size and fashion (Fig. 7, 7a). In preparation of Sheuli, artisan follows the same technique as is used for preparation of Dhari but place Kat at slanting plain adjusted to shola stem and run Kat as quick as possible so that numbers of small elliptical shaped form (7.5-15 cm long × 2.5-3.0 cm width × 0.06-0.1 cm thick) are obtained which are known as Sheuli (Fig. 8). Size of Sheuli is important for making different items of Chand Mala – one kind of garland; smaller Sheuli are used for preparing Papri (Fig. 8a) whereas bigger ones for Chand Mala (Fig. 8a). For preparation of long Mala, a fiber is used for sewing, which is obtained from aquatic macrophyte known as Hogla, Typha angustata under the family Typhaceae.

Daker Kaj is another one as mentioned to be a sophisticated method that requires both skilled artisan and quality shola pith which has traits like diameter in the range of 3.8-5.0 cm, milky white colour, malleability, texture, sponginess, luster, softness, and suppleness. The segmented shola stem (75-90 cm long) is cut into several cylindrical pieces each with 7.5-10 cm long (Fig. 9a). Every piece needs immediate processing, else it may get rotten. Hard brown cover of each piece is peeled off carefully with the help of Kat, leaving only milky white spongy part exposed, known as shola pith. The shola pith may be preserved into closed plastic sack for long to avoid moisture. During processing, this shola pith is held with two fingers, including lazy thumb. Then Kat held with another hand is run skillfully along the longitudinal line (Fig. 9b) of shola pith to pare a thin flat sheet (38-50 cm long × 7.5-10 cm width × 0.05-0.07 cm thick), known as Duma (Fig. 9c). Usually one skill artisan can obtain one such Duma from one piece of shola pith. This thin flat sheet is then rolled, made consolidated and tied with threads at both ends (Fig. 10) for further processing of making different items. Initially, craftsmen spend months to make these flat thin sheets, carving out details meticulously. During preparation of flowers (Figs. 11,11a,12,13), one end of the roll is opened, keeping another end tied. The sharp edge of Kat is used to tear out cut into different directions to
make a variety of shape for having decorative items as per requirements. Sometimes, middle of the consolidated roll is tied with thread, while both ends are made opened and torn out /cut into different shapes to obtain desirable decorative items or different sizes of sheet are carved out for making particular design of objects and are stored in polythene packets to maintain luster (Fig. 14). No parts of shola pith is wasted, even leftover bits are used for making various designs. Sometimes, thin wires are used to make decorative items fastened and hanging. Adhesive is used to paste the different pieces of shola pith to embellish them attractive.

Tools used

Usually, two types of tool (Fig. 15) are used for entire process of shola pith preparation; one type of tool known as Kat which has one sharp edge, another edge being blunt. It is made of iron steel and has varying lengths from 28.5-33 cm, including blade portion with 17.5-22.5 cm long × 2.5-3.8 cm width × 0.03-0.05 cm thick, and 10 cm long handle. Usually, 5-7 numbers of Kat are required for the entire processing. Kanchi is another tool as good as scissor used at the time of finishing activity during processing. Two types of Kanchi are used; one is Fine
Figs. 1-23—A view of shola growing wetlands (Inset, 1a. a flowering twig of shola plant); (2)-A group of women on the way of harvesting shola plants; (3)-Women in action of harvesting shola plants; (4)-Members of a family engaged in processing uprooted shola plants; (5)-A view of drying of processed shola plants (Inset, 5a. one Jhapi); (6)-A young Malaker in action of making Dhari; (7)-A series of steps seen for preparation of Dhari from shola (Inset, 7a. a variety of Malai); (8)-A view showing preparation of Sheuli (Inset, 8a. view of Chand mala, Papri and Malai); (9b)-A view showing preparation of Duma (Inset, 9a. base materials required for Duma; 9c. a view of unfolded Duma); (10)-A view of heap of consolidated Duma; (11)-One woman in action of preparing decorative items from Duma (Inset, 11a. a view of decorative objects); (12)-One young Malaker in action for giving finishing touch to a bunch of flowers ready for markets; (13)-Different types of flowers prepared from shola pith displayed for sale at road side; (14)-A view of prepared base materials stored to be used for preparation of decorative items; (15)-A view of tools used for shola pith works; (16)-a,b,c: Different forms of idols of Goddess Durga; (17)-Idols of Lakshmi, Swarasati and Ganesh; (18)-A view of chariot resembling story of Mahabharata; (19)-A view of decorated elephant; (20)-view of bullock cart; (21)-view of palanquin; (22)-A view of dancing peacock; (23)-A view of decorated boat
Kanchi and another only Kanchi; later one is used for simple cutting, followed by former one for cutting required for sophisticated designing and finishing touch.

Dyeing of base products

Dyeing takes place only for selective base products depending on which products are to be used for specific design. The artisans dip required base products into container having desirable dyes, then lift out immediately and make drying. Depending on the preparation of decorative items, particularly for the objects of Mala, Chand Mala and Papri base products such as Dhari, and Sheuli are dyed accordingly. Usually, red, pink, green, blue, yellow and violet colour is used for dyeing base products.

Handicrafts made from shola pith

The milky white shola pith is used for making a variety of items: sculpture of Goddess Durga (Figs. 16a,b,c), and Goddess Laxmi, Saraswati and Ganesh (Fig. 17), finely carved head wears of brides and grooms during their wedding ceremony, headdress worn by young boys during their naming ceremony, chariot (Fig. 18), decorated elephants (Fig. 19), bullock cart (Fig. 20), palanquin (Fig. 21), peacock (Fig. 22), decorated boat (Fig. 23), different items of wall hanging, plaques, home decorated objects, garlands, flowers, decorative fan, various types of crowns, models of temples, a variety of decorated backdrops of the idols of Gods and Goddess (Fig. 16a), idols of famous persons, etc. However, the finest shola pith works are seen and may mesmerize all during Durga puja, when the massive backdrops of temporary temples are built at the stage. Durga idol is one among the costliest items, which witness the artisans’ craftsmanship in modern times, who spend several months to carve out meticulously all details for making one piece of Durga idol. All the beautiful arts of craftsmanship have more demand because of their use carrying auspiciousness when used in the purpose of decoration in home or shop. Besides, soft shola pith possess unique property like insulating quality which is suitable for use as sunhats, helmet, toys, models and also used for substitute of bottle corks, manufacturing of swimming jackets and life belts, surgical lint.

Importance of Shola pith

Shola pith is consisting of parenchymatous tissue situated at the cortex or core of stem of shola plant and is processed as carving out into delicate and beautiful objects of art. The Shola pith looks like Thermocol made artificially in laboratory. Comparatively, shola pith is much superior in terms of malleability, texture, luster, sponginess and also has greater durability. It has great advantages in uses since it is eco-friendly in view of its biodegradable feature that does not make any pollution wherever it is used. If protected from moisture, its luster attracts all and beauty of milky whiteness creates sanctity over the vicinity.

Economy

The craft items have good market in India, but still are lagging behind far than if its wage calculated in terms of actual time spent for its manufacturing. More and above, this is very much seasonal, so market is not available round the year as in festive season. Malaker community is committed to keep this art alive for their tradition in spite of facing all such adversities. During puja period they earn substantial amount from selling of craft items (Table 1), even one may earn around Rs. 600/day. In case of shola plant harvest, one owner as well as collector can earn Rs. 20,000-25,000/bigha/season (one bigha =1333 m²).

Epilogue

The potential indigenous knowledge manifesting this traditional art and the Malaker community possesses it as traditional owners are overwhelming. It is an important part of the lives of the community

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<tr>
<th>Craft items</th>
<th>Methods involved</th>
<th>Price in rupee (approx.)</th>
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<tbody>
<tr>
<td></td>
<td>Malar kaj</td>
<td>Daker kaj</td>
</tr>
<tr>
<td>Durga idol</td>
<td>+</td>
<td>90,000(^*)</td>
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<tr>
<td>Lakshmi Idol</td>
<td>+</td>
<td>1000</td>
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<td>Idol</td>
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<td>Flower</td>
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<td>Palanquin</td>
<td>+</td>
<td>800</td>
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<tr>
<td>Long flower</td>
<td>+</td>
<td>250-300/bundle</td>
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<tr>
<td>Peacock</td>
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<td>400</td>
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<tr>
<td>Temple</td>
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<tr>
<td>Bullock cart</td>
<td>+</td>
<td>350</td>
</tr>
<tr>
<td>Crown</td>
<td>+</td>
<td>800/2 pieces</td>
</tr>
<tr>
<td>Mala</td>
<td>+</td>
<td>8-10/piece</td>
</tr>
<tr>
<td>Chand mala</td>
<td>+</td>
<td>20-25/3 piece</td>
</tr>
<tr>
<td>Papri</td>
<td>+</td>
<td>15-20/3 piece</td>
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\(+\) indicates the particular method involved; \(^*\) Ref.\(^4\) mentioned the cost of exported one)
forming key elements of our society, who are poor in wealth, struggling every moment for survival, but possesses rich wisdom inherently. On the way of livelihood their forefathers have innovated the technologies in trial and error methods by harnessing potential of *shola* plant, *Aschynomene aspera*, resulting in creation of beautiful decorative objects of unique craftsmanship. One must feel to have synergetic approach for protection and propagation of this crafts and for this it is now necessary to undertake the steps for conservation of *shola* plant which is already threatened. Authors are said that present generation of Malaker community is not so interested to be engaged in this profession long. Therefore, it is surely alarming of keeping this heavenly art alive. There are artificial materials like thermocol available, but this cannot be substitute of *shola* pith when quality is compared. As already discussed, *shola* pith is eco-friendly because of its biodegradable property which will not bring any pollution. In this circumstance, we should prioritize to conserve this *shola* plant urgently so that the great art of craftsmanship revealed in handicrafts will remain alive in society; else we will be responsible to repeat the history of extinction of both *shola* plant and traditional art like the oil yielding plant and *Dodo* bird that could help germinate its seeds.

Acknowledgement

Authors of RRC, CIFA are grateful to the Director and HOD, CIFA; OIC, RRC of CIFA for their encouragement for exploring such economically important flora. Authors are indebted to Mr Partha Malaker, Biplab Malaker, Sombhunath Malaker and their family members for sharing such valuable information with us. We also express our gratitude to Biswajit Ghorai to escort us while visiting wetlands by a small country boat and the entire community of his village, particularly women groups who generously helped us get all the information mentioned in this article.

References

Appendix

_Bati:_ a bent steel made tool of which one end with a wooden base attached (Fig. 4)

*Chand Mala:* one type of garland (Fig. 8a)

_Dhari:_ base product used for making different items of _Mala_ (Fig. 7, 7a)

_Duma:_ a thin flat sheet pared from shola pith (Fig. 10)

_Hansuli:_ a long crescent shaped sickle made of steel (Fig. 3)

_Jhapi:_ one bundle containing dry segmented _shola_ stems of about 300 pieces (Fig. 5a)

_Kanchi:_ a tool as good as scissors used at the time of _shola_ pith processing (Fig. 15)

_Kat:_ a thin and straight cutter made of steel having handle used for obtaining _Dhari, Sheuli_ and _Duma_ (Fig. 15)

_Mala:_ meaning garland

_Malaker:_ maker of garland, representing the community who is involved in making different items/arts of crafts made from _shola_ plant

_Papri:_ one type of garland of small size (Fig. 8a)

_Sheuli:_ base product used for making different items of _Chand mala, Papri_ and _Duma_ (Fig. 8)