

Traditional plant-based artifacts of Odisha

Sudam C Sahu* & Ankita Das

Department of Botany, Maharaja Sriram Chandra Bhanja Deo University (Formerly known as North Orissa University), Baripada 757 003, Odisha, India

*E-mail: sudamsahu.bdk@gmail.com

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The state of Odisha, formerly known as “Utkal” is a land of enchanting beauty, art, culture and it houses exquisite handicrafts made by different groups of artisans who have traditionally specialized in craft making. The field surveys were conducted during the year 2019-21 to explore the skill and knowledge of craft preparation from plant materials. A total of 46 plant species belonging to 39 genera and 21 families were documented for 73 types of artifacts preparation. Out of these 46 species, 24, 21 and 1 species were monocots, dicots and gymnosperm, respectively. They were categorised under herb (20 species) followed by tree (19 species), shrub (4 species) and climber (3 species). Data were collected through open-ended/structured/semi-structured interviews with artisans of different districts of Odisha. The artistic skills of Odia artists are well known in the world. Each article is aesthetically pleasing and reflects the creativity of the artisan and is a representative of local culture and tradition. There should be awareness among people to appreciate the craft products and craftsmanship to preserve this threatened traditional knowledge bestowed to us.

Keywords: Artisans, Odisha, Plant origin, Traditional handicrafts

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Culture is defined as a set of traditional values and knowledge that are transmitted and shared in a particular society¹. Artifacts are man-made objects that represent the culture of a collection of people from a specific location and time. Since the dawn of human society, handmade crafts have been the most important cultural trait. Traditional artifacts made from plant materials are an important part of folk culture all over the globe. Odisha's skilled artisans and craftsmen are capable of creating exquisitely beautiful handicrafts from the most basic raw materials. For generations, the artisan's family has passed down traditional information about these handicrafts. These handicrafts help to preserve the state's rich heritage and culture, as well as the traditionally acquired skills connected with its people's lifestyle and history. Generally, these crafts are practiced in clusters. An artist cluster can be defined as geographically concentrated household units involved in the creation of related products and facing common opportunities as well as threats². In any particular cluster, the artisans often belong to a specific ethnic community, involved in production of long-established products for generations. These craft clusters have employed

numerous artisans including large numbers of women and people belonging to the weaker sections of society³.

Odisha is well-known throughout the nation for its arts and crafts. It is known as the land of handicrafts. In Odisha, over 50 distinct types of crafts are practised. In general, the poorer parts of our society, both in rural and urban areas, rely on the handicraft sector for a living. These sectors have the benefit of requiring less capital investment and involving less risk. Several research studies have been carried out in different countries on artifacts preparation by tribal and rural people⁴⁻⁷. India possesses many pieces of literature on artifacts preparation by traditional and rural people from different parts of the country⁸⁻¹⁸. A few studies have been undertaken in Odisha on the use of different plants in preparation for the artifacts in some parts of the state¹⁹⁻²⁶. However, a comprehensive and exclusive study on artifacts preparation in the state of Odisha is lacking.

Methodology

Study area

The state Odisha (formerly Orissa) is located on the eastern part of the country. The state has the third-largest population of Scheduled Tribes in India. It lies

*Corresponding author

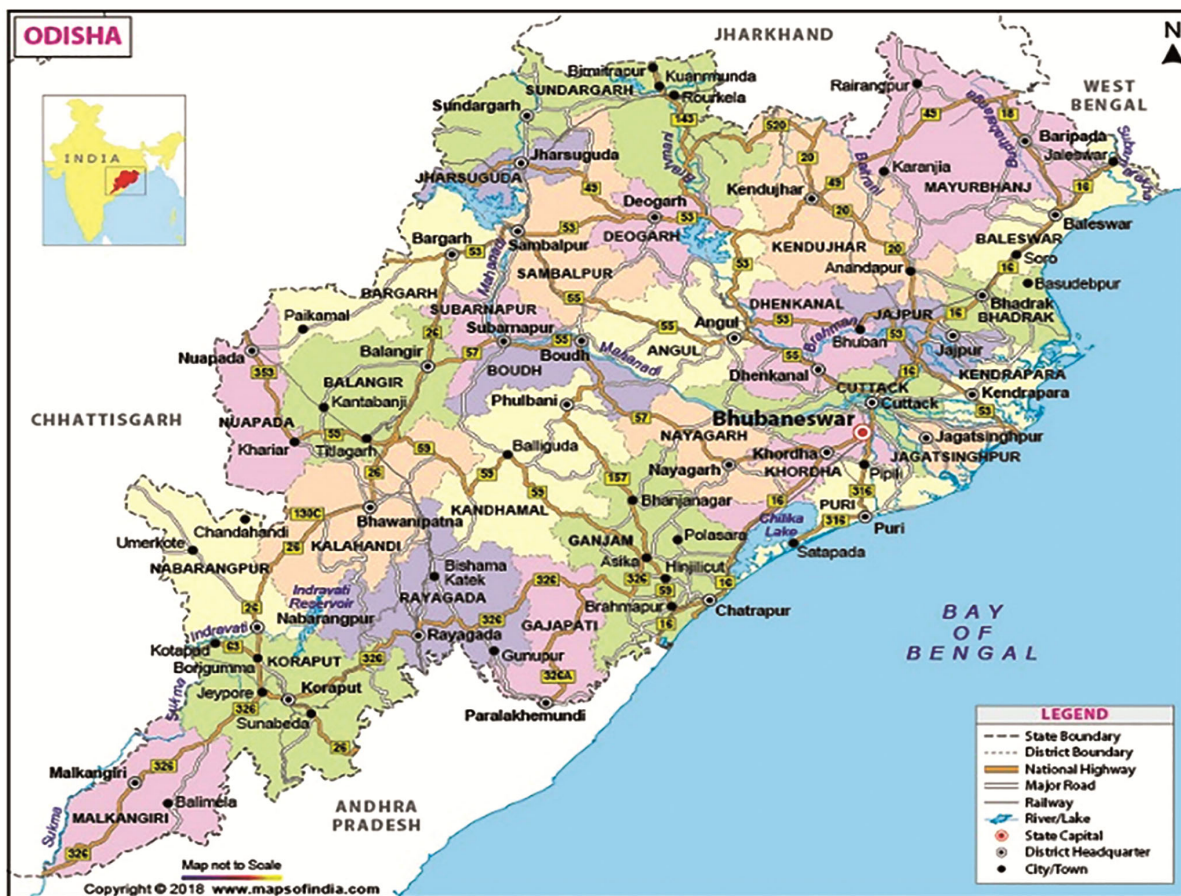


Fig. 1 — Map of study area [Source: mapsofindia.com/maps/orissa/]

between $17^{\circ}49'$ to $22^{\circ}34'$ N and $81^{\circ}27'$ to $87^{\circ}29'$ E. It is also a part of Eastern Ghats of India. The state has an area of 155,70

7 km², which is 4.87% of the total area of India, and a coastline of 480 km along the Bay of Bengal. It is bounded to the north by West Bengal and Jharkhand, to the west by Chhattisgarh, and to the south by Andhra Pradesh. Odisha's climate is heavily affected by the sea due to its location on the coast. The region's environment is tropical, with extremely high temperatures in April and May.

The province has four meteorological seasons: winter, pre-monsoon, southwest monsoon, and northeast monsoon. The state is split into 30 districts (Fig. 1), which are organised into three revenue divisions: Central, Northern, and Southern. Odisha is one of the tribal-dominated states of eastern India, with 62 scheduled tribal groups and a tribal population of 22.85% (2011 Census). Kondhs, Koyas, Sauras, Juangs, Mundas and Santals are the major ethnic communities among them. According to the

language, the tribes are divided into four groups, the Indo-Aryan group, the Dravidian group, the Tibeto-Burmese group and the Austric group. Since, the tribes belonging to Tibeto-Burmese group do not reside in Odisha, all the tribes belong to the other three groups.

Materials and Methods

The present study is primarily based on empirical data and secondary sources were also consulted to enrich the study. Information was collected from all the districts of Odisha during the year 2019-21. The primary data was collected through the use of open-ended/structured/semi-structured interviews among the artisans in order to obtain authentic information. Most of the artisans were in the age group of 40-65 years. We obtained prior informed consent (PIC) by establishing rapport with the tribal people and highest knowledge holders of the villages. Prior to undertaking field research, the objectives of the study were discussed with them. Then we prepared a

schedule of activities, including group discussions and interviews, and presented it to the highest knowledge holders and with their approval, we set a date for the interview and then followed through on that date. The locals gave consent for the dissemination and publication of their traditional knowledge. Questionnaire was framed to collect the information on the plants used for artifacts preparation such as its local name, parts used, mode of use, processing techniques etc. Artisans were asked to explain the tools and techniques of artifacts preparation including its economic importance and marketing. The voucher plant specimens were processed and preserved in the Herbarium of Biosystematics laboratory of Botany Department, Maharaja Sriram Chandra Bhanja Deo University, Baripada, Odisha, India. The identification and updated nomenclature of the plants species were done with the help local flora books and websites such as The Plants of the World Online (POWO), International Plant Names Index (IPNI) etc. The detailed photography has been made on the plants in their natural habitat, methods of preparation and finished products.

Results

The present study attempted to describe the folk crafts produced by the indigenous people of the state of Odisha using 46 different plant species belonging to 39 genera and 21 families (Supplementary Table S1). They were categorised under herb (20 species) followed by tree (19 species), shrub (4 species) and climber (3 species). Of these, 24 species were monocotyledons under 19 genera & 7 families and 21 species were dicotyledons under 19 genera & 13 families. One species *i.e.*, *Cycas revoluta* Thunb. was belonging to Gymnosperm under the genus- *Cycas* and family- Cycadaceae. The predominant number of species belonged to the families Poaceae, Fabaceae, Arecaceae, Cyperaceae, Verbenaceae, Malvaceae. According to the "Flora of Orissa", Poaceae is the dominant family in Odisha²³.

Various plant parts (leaves, roots or young shoots & twigs), which are flexible, strong as well as stable to wearing out were used. The leaves and stems of *Eulaliopsis binata* (Retz.) C.E. Hubb., *Typha domingensis* Pers., etc. were used for making different types of knitted handicrafts mostly in Mayurbhanj and Balasore districts. Fibres from *Coix lacryma-jobi* L., *Derris trifoliata* Lour. were used for making mats, baskets, trays, screens, fishing baskets and fancy materials in Koraput, Ganjam and Puri districts. Bark

of *Hibiscus tiliaceus* L., was used for making cordage, rope, mats, coarse bags, etc. in the Kendrapara district. Fibres obtained from the leaves and bark of *Agave sisalana* Perrine and *Cannabis sativa* L. were used for making carpets, ropes, bags, cordage etc. in Khorda, Puri and Mayurbhanj districts. Fibres from the bark and aerial roots of *Ficus benghalensis* L. were utilized in rope making throughout the state.

In the Koraput and Balasore districts, chains were prepared from seeds of *Coix aquatica* Roxb. by the members of Kondh tribes. The large circular leaves of *Nelumbo nucifera* Gaertn. were used as leaf plates and their dried seeds were used as beads of rosary throughout the state. 'Rudraksha' was obtained from the seeds of *Elaeocarpus stipularis* var. *Siamensis* (Craib) Coode in Similipal Biosphere Reserve of Mayurbhanj district. Fibre from the bark of *Kydia calycina* Roxb. was used for making ropes and carpets. The most common plants involved in basketry were *Corchorus capsularis* L., *Dendrocalamus strictus* (Roxb.) Nees, *Bambusa bambos* (L.) Voss., *Arundo donax* L. and *Cyperus* species. Leaves and fibres derived from *Borassus flabellifer* L. were used for making mats, baskets, hand fans, umbrellas, buckets, sandals, etc. In the districts of Kendrapara and Jagatsinghpur, 'Nalia' grasscrafts (*Myriostachya wightiana* (Nees ex Steud.) Hook.f.) were usually produced. This information was obtained through the ethnobotanical studies of mangrove areas embracing Kendrapara and Jagatsinghpur district of Odisha.

After thorough investigation, it was found that Pattachitra painting, Palm leaf etching, Wood carving and wooden painted toys, Bamboo and cane craft, Coir craft, artifacts made from Santara grass, Sabai grass and Golden grass, crafts made from *Sola* pith, Jute craft, Straw craft, plates made from Sal and Siali leaves, Betel nut carvings, Khajuri leaf crafts and Tribal combs are some of the most popular plant-based indigenous products of Odisha and are further elaborated in this study. Systematic photographs are taken for the finished products (Fig. 2). These craft forms provide enormous opportunity for women employment in the handicraft sector.

Pattachitra

Patta painting or pattachitra (ପଟ୍ଟଚିତ୍ର) is a traditional art form of Odisha. The subjects are mostly mythological and religious folklore, chiefly based on Lord Jagannath and Radha-Krishna, the ten (10) incarnations of Vishnu, and the different



Fig. 2 — [1-3]: Pattachitra painting; [4-6: Coir products]: (4) An exhibition of toys (5) Rope (6) Doormats; [7-11: Sabai grass products]: (7) Doormat (8) Chair (9) Table (10) Flower vase; (11) Baskets and other products; (12) Idols of Lord Jagannath Lord Balabhadra Devi Subhadra carved out of betelnut; (13) Straw painting; (14) Solapith headgear worn by the Holy Trinity

“Vesas” of Shri Jagannath. The pattachitra artists are known as ‘Chitrakaars’ belonging to Maharana and Mahapatra castes. This craft is practiced in the districts of Puri (Raghurajpur, Puri), Subarnapur (Sonepur), Ganjam (Chikiti), Gajapati (Paralakhemundi), Cuttack and Khordha (Bhubaneswar). A special canvas is prepared by coating the strips of cotton cloth with a mixture of chalk powder and gum from tamarind seeds (*Tamarindus indica* L.). The painting is then done

using colours prepared from natural sources obtained by crushing the plant parts (flowers, seeds, leaves, roots, barks, etc.). The Anasarpatti, the Krishna patti, the Bamanapatti, the Kandarpapatti, the Yama patti etc. are worshipped in the Jagannath temple. An allied form of painting is done on playing cards called ‘Ganjapacards’. In the olden times, the ‘Jautuka Padi’ (dowry box) given to the brides at the time of their departure was also painted with patta paintings.

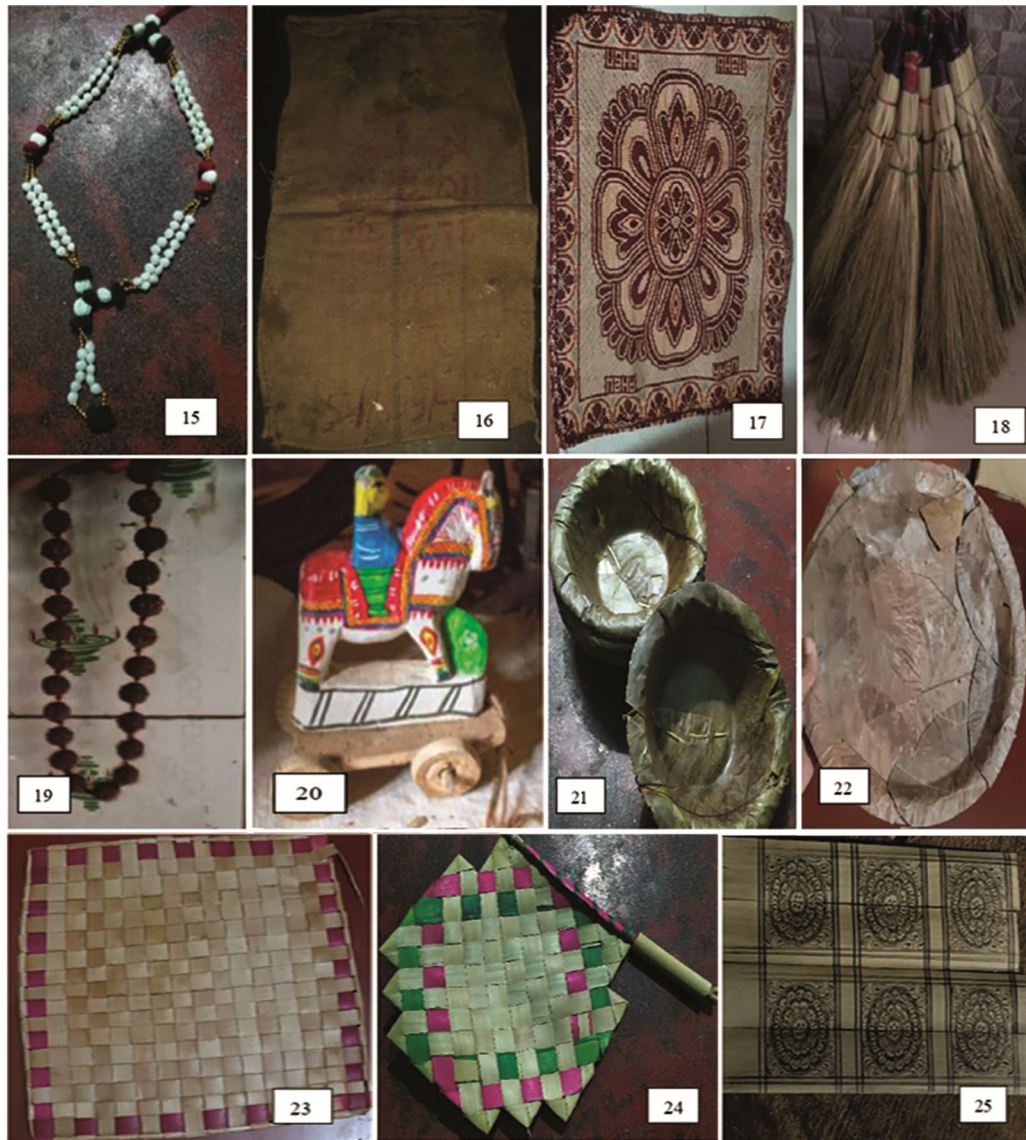


Fig. 2 — (15) Vaskaramala made from *Aschynomene aspera*; [16-17: Jute crafts]: (16) Gunny sac (17) Mat; (18) Brooms made from khajuri leaves; (19) Prayer beads made of Rudraksha; (20) Wooden painted toy; [21-22: Sal leaf products]: (21) Leaf bowls (22) A leaf plate; [23-24: Palm leaf products]: (23) Mat (24) Fan (25) Palm leaf etching

Palm leaf etching

‘Tala Pattachitra’ or ‘Chitra pothi’ has originated in Odisha. Treated leaves of either *Borassus flabellifer* L. or *Corypha umbraculifera* L. are used. It is practiced by the ‘Chitrakaar’ families of Cuttack and Puri (Raghurajpur) districts. The themes are mythological, spiritual and drawn from nature and wildlife. The canvas is prepared from hardened palm leaves. The artisans neatly etch images on the leaf strips using an ‘iron stylus’. To highlight the figures a paste made of bean (*Phaseolus vulgaris* L.) leaves, charcoal made from burnt coconut (*Cocos nucifera* L.) shells, til oil obtained from sesame seeds (*Sesamum*

indicum L.), and turmeric powder (*Curcuma longa* L.) are used. The manifestation of this craft extends to various products which include puppets, hand fans, lamp shed, gift boxes, jatakas and various manuscripts.

Coir craft

‘Coir’ is an eco-friendly fibre obtained from the drupes of coconut (*Cocos nucifera* L.). This tensile fibre may be moulded very artistically producing a wide range of toys, wall hangings, key rings, Christmas hangings, pen stands, various ornamental objects, and other items to decorate the houses. It is primarily



Fig. 2 — (26-27: Bamboo products; (28) Flutes made from *Arundo donax*; [(29)-(31): Some more finished products made out of bamboo & *Borassus flabellifer* L.]; [(32-33: Nalia grass products]: (32) Mat (33) Basket; [34-35: Bena grass products]: (34) Ornament box (35) Hand fan

practiced in the villages of Raghurajpur and Siriapur (Puri district) and also in some areas of the Cuttack district. The various castes involved are Vaishyas, Khandayats, Silcots, Dhobis, and Brahmins. Many products like ropes, doormats, toys like dolls, figures of birds and animals, handbags, table mats, etc. are also made out of coir. These products are well appreciated in both national as well as international markets as they are fittingly priced (50 – 400 INR).

Solapith craftworks

The *Sola* pith works are mainly found in Puri, Jajpur, Cuttack, Jagatsinghpur districts of Odisha. *Sola* (ସୋଳି) is a soft cork-like material used by the master craftsmen for making traditional art works. The soft opalescent, white stems of the two species *Aeschynomene aspera* L. and *Aeschynomene indica* L. are used. The entire decorative structure used in Jhulana Yatra of Lord Jagannath at Puri is done using *Sola* pith. Colourful toy boats are made using *Sola* and bamboo sticks and sold

on the occasion of Kartika Purnima. Artificial crowns are made out of *sola* and palmyra palm (*Borassus flabellifer* L.). Chains, also known by the name ‘Vaskaramala’ (used in Hindu marriages, thread ceremonies and other religious ceremonies) are prepared from it.

Jute craft

Jute (*Corchorus capsularis* L.) fibres are extracted from the stem or bark of the plant. In the Odia language, it is also known as ‘Jhutto’. After cotton, jute is considered to be one of the most affordable natural fibre. Jute fibres are in huge demand for the production of decorative and utility products such as ropes, gunny sacks, bags, purses, file folders, doormats, dining mats, fruit baskets, trays, carpets and wall hangings etc. Jute crafts are particularly indigenous to the districts of Balasore, Bhadrak, Nayagarh, Cuttack and Keonjhar. In the Dhenkanal district, ropes are prepared from jute. These products

are sent to different parts of the state as well as the country for sale.

Wood carving and wooden painted toys

Wood carving is practiced in the districts of Cuttack (Cuttack city), Bhadrak (Tihidi), Jagatsinghpur, Kalahandi, Nabarangpur, Balangir, Dhenkanal and Puri (Raghurajpur). The main raw material is wood, obtained from Teak (*Tectona grandis* L.f.), Sisu (*Dalbergia sissoo* Roxb.ex DC.), Gamhari (*Gmelina arborea* Roxb. ex Sm.), Piasal (*Pterocarpus marsupium* Roxb.) and Sal trees (*Shorea robusta* Roth.). Some of the most popular wooden articles are figurines of deities, animals, toys, flower vases, vermilion boxes, bowls, jugs, lamp stands, etc. Wooden painted toys are folk art native to the Bargarh district but are also practiced in Puri and Bhubaneswar. These toys generally depict birds, animals and human figures or figures of deities. They are carved with great skill and coloured brightly using the colours having plant-based origin. Gamhari is used for carving, due to its light cream colour and fine texture. This art form is practiced by the tribal communities indigenous to the area.

Tribal combs

Out of the 62 tribes inhabiting Odisha, only 12-15 tribes have mastered the skill of comb making. Juang combs indigenous to the Juang tribe are made by the young male members using bamboo, wooden plates, cotton fabric and gum obtained from the seeds of *Tamarindus indica* L. The Juang men make some of the most elaborate combs out of ebony wood (Two species: *Diospyros melanoxylon* Roxb. & *Diospyros ebenum* J. Koenig ex Retz.) often adorned with carvings of birds, flowers and animals. These combs are important courtship gifts in the Juang society. Juang tribes belong to the Keonjhar district of Odisha. Lanija Saora comb is made by members of the Lanija Saora tribal communities of the Gajapati and Rayagada districts. These combs are made using bamboo (*Dendrocalamus strictus* (Roxb.) Nees.) and wood (*Tectona grandis* L. f., *Dalbergia sissoo* Roxb. ex DC., *Gmelina arborea* Roxb. ex Sm., *Pterocarpus marsupium* Roxb., *Shorea robusta* Roth.). The Koyas (the principal tribal community of Malkangiri district) are involved in the making of Koya combs using bamboo *Dendrocalamus strictus* (Roxb.) Nees. and sago palm (*Cycas revoluta* Thunb.) fibre. Combs made by the Desia Kondh tribes also require bamboo and sago palm fibre as raw material. These combs are symbolic of the socio-religious beliefs of their respective communities.

Straw craft

Rice, the major cereal crop of India covers approximately 41 billion hectares of land. The dry stem of the paddy plant (*Oryza sativa* L.) left over after harvesting is known as 'straw'. This was used for making shiny golden paintings of subjects derived from traditional stories, Indian mythology, Jagannath culture, and nature. This craft form is majorly practiced in Jiral, a small village in the Dhenkanal district. Straw craft is used for making lamps trays, paintings, wall hangings etc.

Santara grass artifacts

Cyperus alopecuroides Rottb. is commonly known by the name 'Santara' or 'Hensuati' native to the Bhadrak district but is also reported from the districts of Ganjam and Kalahandi. The mats made from this grass have a significant role in wedding rituals and thread ceremonies. Inflorescence stalks and leaves of *C. alopecuroides* intertwined with rope prepared from *Pandanus odorifer* (Forssk.) Kuntze prop root fibres are used in the preparation of mats. Usually, old people of the village are involved in mat weaving. These mats are also utilized as packing material for the transport of leaf plates made out of siali and sal leaves. Other *Cyperus* species like *Cyperus corymbosus* Rottb. is used for making small mats also known as 'Chatei'. Inflorescence stalks and leaves of *Cyperus imbricatus* Retz. (Puri and Cuttack districts), *Cyperus pangorei* Rottb. and *Actinoscirpus grossus* (L. f.) Goetgh. & Simpson are also used for the production of mats, bags, baskets and other domestic items used in decoration.

Sabai grass handicrafts

Eulaliopsis binata (Retz.) C.E. Hubb. is the scientific name of 'Sabai grass'. It is a perennial fibre yielding grass growing mostly in tropical deciduous forests embracing the districts of Mayurbhanj (Betnoti), Balasore (Baliapal), Puri, Angul, Ganjam, Sundergarh, Keonjhar, etc. In its wild form this grass occurs in the tropical forests of Odisha like Similipal Biosphere Reserve, Malyagiri hills, Gandhamardan hills, Mahendragiri hills, etc. Fibre extracted from its leaf are used for making ropes, cots (charpai), doormats, tables, chairs, flower vases, tea poy, bags, table mats, brooms and screens. The indigenous tribal communities particularly including the Santals, Kols, Bhunjias, Mankidias, Lodhas, and Kondhs are involved in the making of this art form. The civil jail of the Baripada town, is the pioneering institute in introducing such artifacts. The sale of Sabai craft

products peak from March to June of every year. This constitutes the major source of income for many tribal families of the state. It is a source of revenue generation and eradication of the employment crisis among tribal people.

Golden grass artifacts

The scientific name of 'Golden grass' is *Chrysopogon zizanioides* (L.) Roberty (also known as 'Vetiver'). In the Kendrapara district it is known as 'Kainsa/Kaincha'. In the districts of Puri, Jajpur, Bhadrak, Jagatsinghpur, Khordha, Cuttack and Balasore it is known as 'Bena'. The majority of the artisans belong to scheduled castes (Pana, Kandara, Baguti, Keuta, Dalai and Niari) and scheduled tribe (Saara or Sabara, Kolha) communities. Artifacts prepared include objects used in socio-religious rituals and functions like 'Kuanra Pasara', 'Brata Pedi', 'Puja Gua Pedi' and 'Bhalukuni Bhoga Pasara'. Many modern lifestyle accessories such as wall hangings, drawing room, dining table and bedroom articles, ladies' handbags, ornament, box etc. are also produced. Other attractive crafts which are prepared from Bena include toys, models of carts, country boats known as 'Boita' which needs the expertise of the experienced artisans. Varieties of items like a hat, tray, pot, glass cover, mobile phone stand, flower vase, pen stand, bed light stand and boxes of different sizes are made using this grass.

Bamboo and cane craft

Bamboo and cane crafts are the second most commonly used plant products of Odisha. Thirteen species of bamboo have been reported in Odisha, out of which the most commonly occurring species are *Dendrocalamus strictus* (Roxb.) Nees. (*Salia Baunsa*) and *Bambusa bambos* (L.) Voss. (Kanta, Daba or Balia). Cane (*Arundo donax* L.) and bamboo crafts are practiced in the districts of Cuttack (Banki), Khordha (Banapur), Mayurbhanj (Udala), Balangir, Jajpur (Jarka), Kandhamal, Ganjam, Kalahandi, Dhenkanal, Boudh, Sambalpur, Kendrapara, Sundargarh, Rayagada, Nayagarh, Nabrangpur and Malakangiri. Bamboos are traditionally used to create furniture items such as mats, stools, chairs, table, sofa, etc. Many items like pen stands, baskets, brooms, wall hangings, flower vase, containers, boxes, handbags are also made from bamboo. They can also be used to make kitchen wares like a spatula, spoon, chopsticks, bowls, bottles, straw, etc. The weaker sections of the society generally practice this craft for livelihood.

The artisans of Kendrapada, Patamundai, Banki-Dampada areas produce cane and bamboo baskets, cane sofa sets etc. for domestic use. Flutes made from canes are sold in local fairs. Dried culms of cane are used for making walking sticks, fishing rod, fish traps, handles of bags, and long roof cleaning brushes.

Betel nut carvings

The scientific name of Betel nut or areca nut is *Areca catechu* L. and locally known as 'Gua'. This craft form is practiced in the districts of Khordha (Bhubaneswar) and Ganjam (Aska and Berhampur). Betel nut seeds are engaged in making craft pieces. Craft work encompasses the carving of intricate and detailed designs over its surface. The theme ranges from popular deities to figures of animals and symbolic emblems. Another range consists of jewellery pieces like beads, rings etc. and key chains. Tiny effigies of deities like Lord Jagannath, Devi Subhadra and Lord Balabhadra for domestic shrines are prepared.

Biodegradable cutlery from Siali and Sal leaves

In India, serving food on leaf dining plates is a long-standing tradition with its own cultural, religious, medicinal and socio-economic significance. Siali (*Phanera vahlii* (Wight & Arn.) Benth) and Sal (*Shorea robusta* Roth.) leaves are the major source of livelihood for the people belonging to the predominantly tribal districts of Odisha. Sialis a massive creeper with large leaves that typically grows around Sal trees, and thus commonly found in Sal forests of Odisha. The Siali and Sal leaves are major NTFP (Non-timber forest product) in different parts of Odisha and collected by the tribal people. The traditional forest dwellers depend on collection and stitching of leaf plates and cups for their livelihood. The women of Kondh tribes are involved in making eco-friendly leaf plates. The women of Santal tribes prepare leaf plates (patrakhali) and cups (phuluhdana) and sell them in their local market. In the Jagannath temple at Puri, the *mahaprasad* is served to devotees in sal leaf plates in Anand Bazar. In the rural areas of Ganjam, Gajapati and Phulbani Siali plates are chiefly used in houses, hotels, high-end restaurants, religious ceremonies, festivals, weddings, during different community feasts and other occasions where food is served for a large number of people. It is estimated that Odisha does INR 400 crore Sal and Siali leaf trade every year.

Kewda leaf work

Screw pine, locally known as 'kewda', 'keora' or 'kia'. Fibres are extracted from kewda (*Pandanus odorifer* (Forssk.) Kuntze) leaves and silt roots. In Odisha, these plants occur in Puri, Cuttack, Balasore, Jagatsinghpur, Kendrapara and Ganjam districts. Particularly in the Ganjam district (Rangeilunda, Chatrapur, Ganjam, Chikiti and Gopalpur) the kewda plant grows naturally and abundantly. The leaves and roots are processed and used in local cottage industries. The spiny, fibrous leaves are used for making cordage, mats, hats, bag and baskets. After sun drying, the leaves are separated into fine strands and dyed and are woven together after drying. The fibres from stilt roots are used for binding purposes. This is a rare craft form indigenous to Ganjam district and is on a declining trend. Currently only few artisans are left to run this craft and keep it alive.

Khajuri leaf crafts

The Khajuri plant (*Phoenix sylvestris* Roxb.) grows abundantly along the roadside, wasteland, around homesteads, crop fields, ponds and canal bank. In Bhadrak district, the leaves of the plant are used in many religious and socio-cultural functions. Crafts associated with Khajuri, have generally been carried out by rural people of the Bhadrak district since olden times and generally include mats and brooms made out of their leaves. The prices vary seasonally and are based on the locality of the enterprises. The price of the product also varies with size, quality and local demand. In Dhenkanal district, *Phoenix acaulis* Roxb. leaves are used for making mats and brooms.

Discussion

Handicrafts are a significant source of employment in the state's rural areas. They offer enormous opportunities for women employment in the handicraft industry. They also provide a source of income for youth tribal members throughout the state. Odisha's handicrafts are highly valued in both domestic and foreign markets.

Handicrafts production from *sabai grass* by the artisans of civil jail of Baripada in Mayurbhanj district is well known¹⁹. They are commonly sold in Baripada and other cities of Odisha. Leaf cutlery made from *Siali* (*Phanera vahlii*) and *Sal* leaves is becoming very popular in Odisha. Generally, the tribal people reside in and around the forest areas collect these leaves from the forests and make leaf plates in daily basis for their livelihood²⁴. The leaf plate trade is also practiced by

the tribal people of Madhya Pradesh, Chhattisgarh, Andhra Pradesh and Telangana for their livelihood¹⁵. The various products made from *Aeschynomene* spp (*Solo* pith) in the Jajpur district provide a source of income for rural inhabitants. Apart from Odisha, *Sola* pith is also utilized for making craft work in West Bengal and a detailed study on the conservation of this craft form was done by Mandal *et al.*¹⁶. *Cyperus* spp. are being used for mat weaving and basketry in Odisha²⁰ and Tamil Nadu¹¹. Mat weaving from dried stored plant materials of *Cyperus* species provide occupation for old persons throughout the year as it needs less labour and more expertise. Bamboo and cane are being used for making a vast variety of artifacts not only in Odisha but also in the states of Arunachal Pradesh¹⁷, Tamil Nadu¹¹, Andhra Pradesh¹⁸ and Andaman islands¹⁴.

Traditional utilization of *Khajuri* (*Phoenix sylvestris*) leaves is an established handicraft fashion¹³. This craft is being practiced in Bhadrak district of Odisha. The use of *Pandanus odorifer* in making baskets and other artifacts is commonly practiced in the coastal districts of Odisha^{25,26}. The use of Nalia grass (*Myriostachya wightiana*) for preparation of artifacts in the Kendrapara and Jagatsinghpur districts is very popular²². Rural people of these districts make it as a profession for livelihood. However, due to forest department's limitations on accessing the forests, the availability of this raw grass from mangrove areas becomes difficult. As a result, it is recommended that the forest department implement participatory policies for the livelihood security of rural people who are losing their jobs producing handicraft products from this grass. Many plants in Odisha have enormous potential for handicraft production and marketing. The authors propose that a rural awareness campaign be implemented to promote the sustainable use of these plant resources.

Unfortunately, in the current situation, handicraft sectors are still unorganized and have little exposure to new technologies. Modernization of manufacturing methods has made their survival difficult. They are unable to contend with large-scale industries due to a lack of effective marketing, infrastructure, scarcity of raw materials, lack of working capital or labor, and other factors. As a result, they are on a downward trend in terms of growth and job generation. Furthermore, illiterate artisans are unaware of contemporary trade and commerce laws and thus

unable to protect their design and technology. As a result, their traditional expertise engaged in craft making becomes vulnerable to piracy and exploitation. The artisans are now living a very distressing existence as a result of their declining income. Investment in the handicraft sectors has been extremely scarce in recent years. Aside from the financial requirements, a major bottleneck has been the lack of appropriate marketing skills.

Due to COVID-19 pandemic situation, a declining economy, unemployment, reduced expenditure, the pandemic and subsequent lockdown have adversely affected the handicraft sector. As most of these traditional products came under the 'non-essential products' category adds up to the reason why the situation of the artisans is getting negligible attention despite the calls for "vocal for local" and "Atmanirbhar Bharat". Since the lockdown, production has stopped completely. Huge unsold inventory has piled up. The monthly income of the craftspeople before the pandemic and lockdown was nearly between 6000- 20,000 INR. On 25th March 2020, nation-wide lockdown was enforced to combat the spread of Corona virus which lasted for months together. Since then, there hasn't been any sale either through exhibitions or orders. As a result, the artisans were left without capital to reinvest. They neither have food for daily consumption nor enough savings to meet hike in the prices of necessary commodities and medical expenses. Most of the artisans either took up agriculture or migrated to make ends meet. This migration of labour has been a major reason for labour shortage.

Despite having a strong worldwide market, these industries struggle to project themselves. The government should develop policies that will assist in making goods more globally competitive. These clusters should be given marketing and financial help. Loans with lower interest rates should be made accessible. The government should develop programmes to educate unskilled workers so that they can find employment in these clusters. Existing artisans should also be trained to create innovative products that will draw customers while also allowing them to contend with large corporate bodies. Patenting the products and expertise of artisans protects them from unauthorised exploitation and piracy. Handicraft industries require a legislative framework to thrive.

Conclusion

The state of Odisha has a rich history and is blessed with rich cultural heritage. Traditional handicrafts are

very popular among both locals and tourists. Despite technological advancements, obsolete tools are still used to create these traditional handicrafts, and they never cease to be intriguing. Because the handicraft industry does not require much capital investment but can still generate high profits, the government should establish research and design development units in each district, both rural and urban, for earning and livelihood. It will not only provide work for local youths, but it will also decrease migration to cities and preserve an age-old tradition and trade. Our crafts, craftsmen and craftsmanship are like a treasure to us. We should make people understand and appreciate it, to preserve this rich legacy bestowed to us.

Supplementary Data

Supplementary data associated with this article is available in the electronic form at [https://nopr.niscpr.res.in/jinfo/ijtk/IJTK_23\(01\)\(2024\)56-66_SupplData.pdf](https://nopr.niscpr.res.in/jinfo/ijtk/IJTK_23(01)(2024)56-66_SupplData.pdf)

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Conflict of Interest

Authors declare that they have no conflict of interest related to this article.

Authors' Contributions

SCS conceptualized, designed and supervised the work. SCS and AD have done the field work. AD wrote the original draft. SCS edited and reviewed the draft.

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