



***Adansonia digitata* Linn. (Baobab) shell and its valuable potential uses**

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Abstract

This paper provides information regarding the utilization of baobab fruit shells and incorporates findings from own fieldwork concerning their cultural significance in Uttar Pradesh and Madhya Pradesh. Fieldwork conducted over the one-year period from June 2025 to May 2026 involved photographing them and their fruit producing; baobab trees were also identified through publications, personal accounts, books, and internet research. Although the use of baobab fruit shells for crafting decorative items has not previously been documented, this study demonstrates that they are not merely waste material; the aim of this summary is to encourage greater focus on the creation of decorative objects from *Adansonia digitata* L. fruit shells in Uttar Pradesh and Madhya Pradesh. The seeds and pulp of these fruits possess significant medicinal and economic value. However, the shells of the *Adansonia digitata* fruits are rarely seen being utilized anywhere; in this research paper, various decorative products such as electric lamps, flower pots, pencil holders, candle, and bird nests. Mandu region of the Dhar district (Madhya Pradesh) is home to a large number of *Adansonia digitata* L. trees, which are actively protected by the local tribal communities. For these tribal communities, the Baobab fruits (Mandu ki imli) serve as a vital source of economic livelihood. Consequently, decorative products crafted from these fruit shell in Mandu as well as in other locations where *Adansonia digitata* trees bear fruit have the potential to become a sustainable means of economic empowerment. The outcome of this research is a handicraft product that is visually appealing, beneficial to the tribal community of Mandu, and holds economic value. This is significant because the highest number of *Adansonia digitata* L. trees approximately 200 have been recorded in Mandu.

Keywords: *Adansonia digitata*, crafting, Mandu, I. P. college, fruit shell

Introduction

Baobab or *Adansonia digitata* L. belongs to the Malvaceae family (Bremer *et al.*, 2003)^[3] and is a deciduous tree native to arid Central Africa (Yazzie *et al.*, 1994)^[13]. The dry baobab fruit pulp has a slightly tart, refreshing taste and is very nutritious, with particularly high values for carbohydrates, energy, calcium, potassium (very high), thiamine, nicotinic acid and vitamin C (very high) (Arnold *et al.*, 1985). The baobab fruit pulp is dry, acidulous and mealy, and rich in mucilage, pectins, tartaric acid and free tartaric acids. The presence of the tartaric acid gives rise to the name 'cream of tartar tree' (Sidibe & Williams, 2002; Wickens (1982) cited in Ajayi *et al.*, 2003)^[2, 11, 12]. Pulp sweetness is provided by fructose, saccharose and glucose contents. When eaten raw, the pulp is a rich source of calcium and vitamins B and C (Ajayi *et al.*, 2003)^[2]. fruit shell (BS), which occupies more than 80% of the baobab fruit (M.F. Chiacchio, *et al.*) is considered waste and discarded indiscriminately, posing a danger to the environment. Currently, BS is poorly managed, and in some places, they are even burned in the open air, which negatively affects the environment in many ways (air, land, and water pollution) (C. Danha, J. Kodzwa, L. Mangori, A. Chemura, (2015)^[4]). Interestingly, previous literature has found many beneficial compounds and essential nutrients in the BS and other parts of the baobab tree (J. Rahul 2015)^[6]. considering the benefits mentioned above and the potentialities of BS, it can therefore be considered a potential filler fiber that could enhance plant growth by providing the needed nutrients such as C, O, P, K, Ca, Na, Mg, Cu, etc. (A.A. Ansari and S. Singh, (2017)^[1]). Handicrafts made from Baobab fruit shells can help protect the environment by curbing the use of plastic products. The

outer wall of the baobab fruit is extremely hard and rigid, consisting of a tough green outer layer. The first step involved thorough cleaning of the fruit. The pulp and seeds were carefully removed from the fruit shell to obtain a clean and hollow structure suitable for further processing. After completing the cleaning and preparation steps, the processed fruit shells were utilized for the development of a variety of useful and decorative products. Several handicraft techniques were employed during the preparation of the products. Various sustainable items were developed, including flower vases, pencil holders, lamps, bird nests, candle holders, and other decorative objects. The baobab fruit shell was utilized to develop a decorative lamp through a systematic crafting process. A light bulb connected to an electrical wire was then installed inside the hollow structure, ensuring proper placement and stability. In gardening, coconut shell pots are gaining popularity as natural planters. These planters allow for air circulation around plant roots, promoting healthier growth, and can decompose directly into the soil when no longer in use, creating a closed-loop system that minimizes waste (Muralidharan and Jayashree, 2011)^[9]. The development of coconut shell-reinforced composites supports a more circular economy by utilizing natural materials and reducing the reliance on non-renewable resources (Loomba and Jothi, 2013)^[7]. Poverty is one of the main problems that occur in developing countries, although some developing countries have succeeded in carrying out economic development in production and national income. The condition of poverty in a country also reflects the level of welfare of its population (Christianto, 2013)^[5]. Initially, the entire surface of the vase was painted with red acrylic color. Subsequently, air-dry clay was used to create various decorative patterns. The

base of the vase was painted black with small white dots to enhance its visual appeal. Further designs such as triangles, circles, and other geometric patterns were created using air-dry clay and fixed with adhesive. Small mirrors were then embedded within the design spaces to enhance the aesthetic appearance. After completing all decorative work, the flower vase was ready and appeared highly attractive. To construct the pencil holder, a pre-cleaned fruit shell was subjected to an oblique, diagonal cross-cut at the upper aperture to produce an elongated elliptical opening. After proper cleaning, the shell was carefully cut into a circular opening at the centre using a knife to create an entrance for the bird nest. The final product resulted in a well-structured, eco-friendly, and decorative bird nest made from baobab fruit shell. Preparation of a candle holder, the baobab fruit was first cut vertically into two portions. After cutting, the surface was cleaned properly and then decorated using acrylic colours. In the present study, public engagement was achieved through an institutional exhibition organized at I.P. College, Bulandshahr on 7 May 2026. This exhibition aimed to showcase the innovative utilisation of *Adansonia digitata* (baobab) fruit shells and to promote conservation awareness of this rare species in Uttar Pradesh and Madhya Pradesh. The exhibition displayed handcrafted products developed from baobab fruit shells. The event attracted students, teachers, and visitors, making it an effective platform for knowledge exchange and public interaction. The arrangement included both raw and processed baobab fruits, allowing viewers to observe the transformation process from natural material to finished products. Handwritten labels indicating different geographical locations such as Lucknow Zoo, Mandu (Madhya Pradesh), Sichora Mahoba (Uttar Pradesh), and Aligarh were included. These labels provided additional context regarding the occurrence and awareness of baobab trees in India. The exhibition played a crucial role in engaging the public and raising awareness about *Adansonia digitata*. the objective of this study is to understand the benefits of crafting items from discarded baobab shells. I. P. P G. College, Bulandshahr, Uttar Pradesh was selected as the site for this research.

Material and Methods

Adansonia digitata Linn. shell it is a basic raw material used in making of Baobab shell craft. Fruits of *Adansonia digitata* L. were collected from I.P. College, Bulandshahr; Gulistan e Syed, Aligarh Muslim University, Lucknow Zoo, Sichora Mahoba, Ghaziabad Uttar Pradesh, Orchha Madhya Pradesh and Mandu Madhya Pradesh. After returning from the collection site, the agricultural waste (fruit shells) was utilized for the preparation of value-added products with a focus on sustainable and eco-friendly applications. For the crafting process, various tools and materials were used, including sandpaper, knives, blades, a drilling machine, Fevicol, acrylic colors, air-dry clay, brushes, electric wire, bulb, small mirrors, and other essential crafting tools. The entire outer surface was first coated with an orange base layer.

Results and discussion

The results clearly indicate that producing handicrafts from *Adansonia digitata* Linn. shells creates a source of income, thereby benefiting the economic situation. The highest production of *Adansonia digitata* fruit in India has been recorded in Mandu, in the Dhar district Figures 1 to 15 display handicrafts such as lamps, bird nests, candle holders, flower pots, and pencil holders made from the shell of

Adansonia digitata Linn. fruits. Figures 2, 3 and 15 depict exhibitions of handicrafts made from these shells, as well as conservation and awareness programs for the Baobab tree. The finished products serve as decorative artifacts and highlight the potential of baobab fruit shells as a sustainable material for handicrafts. This process illustrates the transformation of natural waste material into aesthetically pleasing decorative items through basic artistic techniques and creative skill. Beyond traditional products, modern designers are incorporating coconut shells into innovative art pieces, furniture, and decorative home items, blending sustainability with creativity (Navin *et. al.*, 2019)^[10].



Fig 1: A view of the collection of *Adansonia digitata* fruits from various locations



Fig 2: Exhibition on *Adansonia digitata* products at Botany department of I.P. College, Bulandshahr



Fig 3: A view of the collection of *Adansonia digitata* fruits from I.P. P.G. College Bulandshahr, Uttar Pradesh



Fig 4: A light lamp made from the fruit shell of *Adansonia digitata*



Fig 5: View of light lamp without colour



Fig 6: Different colours and different shape light lamp made from the fruit shell of *Adansonia digitata*



Fig 7: cleaned structure of *Adansonia digitata* fruit shell for making bird nest



Fig 8: View of bird nest



Fig 9: Candle made from *Adansonia digitata* fruit shell



Fig 10: *Adansonia digitata* fruit shell Cleaned from sandpaper



Fig 11: *Adansonia digitata* fruit shell used as Flower vase



Fig 12: *Adansonia digitata* fruit shell view of electric lamps without colour



Fig 13: Cleaned *Adansonia digitata* fruit shell from sandpaper



Fig 14: Back and front view of Pencil holder made from *Adansonia digitata* (baobab) fruit shell



Fig 15: Honorable, Professor Arvind Kumar, Principal I.P. College, Bulandshahr, teachers and students at an awareness exhibition featuring handicrafts made from *Adansonia digitata* fruit shells

Conclusion

The present study concludes that the agricultural waste of *Adansonia digitata* Linn. fruit shells can be converted into useful handicraft products. These handicrafts can be used to generate income for local people through value addition and craft-based utilization. This research work will also be useful for the conservation of this iconic tree species *Adansonia digitata* in Uttar Pradesh and Madhya Pradesh. Since this plant is beneficial to humans in many ways, its propagation and conservation are required to ensure that future generations can continue to benefit from it.

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