

## **Palm trees as an environmental source for the development of artistic works In the Kingdom of Saudi Arabia**

Tibra Jameel Khusaifan

Associate Professor, Faculty of Arts and Design, King Abdul-Aziz University – Kingdom Of Saudi Arabia  
[tibrjameel@yahoo.com](mailto:tibrjameel@yahoo.com)

**Abstract:** The Kingdom of Saudi Arabia possesses outputs of palm trees after droughts as basic raw material which can be used in many products and artistic works, the most important of which are fibrous tissue and twisted products and woven, as well as the manufacture of environmental furniture and the manufacture of various types of pallets. The palm tree industry is one of the scientific projects that contribute to development on Local and regional level as well. The research problem is determined by presenting the contemporary concept of creative industries that can be obtained from the environmental raw materials in the scope of artistic and practical products. The researcher seeks to find a contemporary vision that represents these products to a developmental and aesthetic value with a contemporary Saudi identity. The aim of the study is to contribute to increase the visibility of the richness of palm trees and the diversity of their industrial use perspective, thus becoming an economic and aesthetic addition to the Saudi society and environment. The importance of this study lies in monitoring the basic aspects for which technical work is carried out in the field of raw materials available in the Saudi environment, especially palm tree elements. And the awareness of Saudi society and decision-makers of the importance of the development of handicraft industries in the medium, small and micro industries. With the presentation of some innovative ideas with the addition of technical, technical and functional, and the appropriate economic return. In order to contribute to the results of this study in the submission of specific proposals for the means of developing products made from palm trees and open new horizons and visions of contemporary environmental and economic.

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**Keywords:** palm trees - environmental source - development - art works - Saudi Arabia

### **1. Introduction**

Environmental raw materials have a great impact in the emergence of many useful and technical works from previous eras until the present day. Since its inception, man has been constantly researching and experimenting with the raw materials on which his eyes are located and which are the environment in which he lives. He has made his dwelling, clothes, And Tools, as engraved by his drawings and his civilization. (Mohamed, 1997).

Thomas Monroe explained that the study of the artistic vocabulary, which can be derived from different materials, but includes awareness of the heritage and philosophy and the circumstances surrounding its production in an integrated framework of activities, civilization is the physical application of heritage and the components of society and its characteristics.

With the decline of many economic sectors after the financial crisis in the world, the impact on the volume of trade in many countries, we find that many countries have tended to develop products of a technical and creative nature as a means to achieve economic stability. This sector includes cultural fields as well as handicrafts that reflect the people's cultural heritage.

The report prepared by the United Nations Development Program (UNDP) with UNCATAD. 2012 that many Arab countries have the capacity to be one of the largest exporters of many creative environmental industries, although China is superior to them at the international level. The report said that these industries represent a good opportunity for countries to diversify their economies in addition to their contribution to the development of the economy, given the rapid growth rates achieved during the past years. The report pointed out, however, the need to develop the intellectual property protection system in the Arab countries, especially the different types of artistic works, as well as the development of modern technological methods to find new patterns of products, which directs the environmental raw materials to an economic scale, In raising the determinants of development in the Arab society. Palm date palm is considered one of the most important environmental sources for obtaining the raw materials for many technical works, whether raw materials or hard materials. Baalbeki pointed out that the most important species spread in Saudi Arabia, date palms and palm trees. Which is a species with a palm branch, and the scientific name of "Phoenix

Dactylis and there are many numbers belong to this species.

The study of the works of art produced from the palms historically, we find the evolution and change in many products during the successive periods of time, change are aware of features from time to time, and from one geographical area to another and civilization to another. The difference and diversity in the form and function of the occupied resulting from the elements of the palm of some of the decoration or was for the purpose of use or construction. In the present era, we find that changing the shape and function of palm works represents a shift, but an unprecedented breakthrough in the concept of creative work.

This research study reviews the visions and concepts related to the reality of the work resulting from the elements of different palm trees. The scientific progress and the cultural and artistic concept that is absorbed in this art and the ideas of globalization all have the obvious effect in shaping the reality of building the artistic works resulting from palm trees in our current local environment.

**Research problem:**

This research reviews the contemporary concept of creative industries that can be obtained from environmental raw materials in the range of artistic and functional products. The absence of awareness of the economic potential in the scope of these products and their aesthetic role in the development of artisanal industries on the other hand. We all realize a problem in our reality. We are still looking at artistic works from the perspective of individual work, which has negatively affected our vision in the development process. These materials are consumed without the organized benefit, which is based on the appropriate material return.

What the researcher seeks to achieve in this study is to find a contemporary vision that amounts to a desired aesthetic value. This raises the question of the extent to which the raw materials produced by palms can obtain innovative artistic products with a Saudi identity of economic nature.

**Research goals:-**

The aim of this research is to contribute to increasing the foresight of palm tree richness and diversification of the industrial use perspective, in addition to the Saudi society and environment within the following points:

- Expand and deepen the vision of Saudi society to develop traditional art industries associated with palm trees.

- Creating new technical and technical starting points for the formation of many products related to palm products with a Saudi identity - inspired by the Saudi architectural heritage.

- Design of some models showing the utilization of palm products as an environmental source for the development of the technical works.

- Taking advantage of the possibility of palm fronds as industrial raw material alternative for some imported wood.

**Research importance:**

The importance of research lies in:

- Monitoring the main aspects for which the design and implementation of technical works in the range of raw materials available in the Saudi environment, especially elements of palm trees.

- The awareness of society and decision-makers of the importance of developing craft industries in the medium, small and micro industries.

- Presenting some innovative ideas with technical and functional addition, and the appropriate economic return.

- Contribution of the findings of the study in the submission of specific proposals for the means of developing products made from palm trees.

- Emphasizing the importance of the Saudi heritage through the production of contemporary art works with a Saudi identity.

**Study Approach:**

The study was based on the analytical descriptive approach to describe and analyze the components of palm trees and their parts and the possibility of benefiting from some of these parts by producing artistic and developmental handicrafts with a Saudi identity and economic return.

**Components of the study:**

**First:** What is the date palm (the importance of palm trees - types - basic components).

**Second:** The technical and artistic capabilities based on palm trees.

**Third:** Palm trees as an environmental and artistic inspiration.

**First:** What is the palm (the importance of the palm tree - its types - its basic components).

The Saudi environment is rich in many different raw materials. The palm trees, which are called the tree of life in the desert areas, are among the oldest trees known to man. All the sacred religions have been honored by the palm tree and cultivated by palm trees in Arab societies. And social values inherited by generations (Rawabdeh - Ministry of Agriculture: kenanaonline.com).

The Kingdom is the second largest country in the world in the production of dates and date palm cultivation. The cultivated area in 2011 is about 165 thousand hectares. The number of palm trees is estimated at 23.7 million palms and the number of varieties is about 400 varieties (Al-Ahsa News, October, 2014). Palm trees grow from the north of the Arabian Peninsula to the south and from the east to the

west,, it is not surprising that the slogan of the Kingdom includes palm trees as the Kingdom of Saudi Arabia is interested in palm trees and preserves it, has been keen to establish specialized research centers and chairs scientific university to prepare a number of scientific studies. "It has also prepared a number of encouraging, medium-term and interest-free loans offered by the Saudi Agricultural Bank to the farmers".

And this interest is not born of the present time, but that since the date of history as the date of the main meals for the children of the Arabian Peninsula and is still present in all the councils of hospitality and generosity as dates are the natural candy for the children of the Peninsula until the present time, The dates are considered as a cornerstone for fasting the fasting person in the Muslim world, not only the kingdom. This is in accordance with the noble Sunnah, which requires beginning with dates and water. You can't find any Saudi house doesn't have dates. Dates are presented in different ways and different occasions. The Hajj and Umrah season is one of the seasons. Distribution of dates for pilgrims and selling it as souvenirs taken by guests of God to their families as a product of Saudi products.

Types of palm and its components:

The date palms are two-type trees (females - males) although it is difficult to differentiate between them, and usually the male palm is larger and longer. Palm can be divided into trunk and head. by studying palm trees, the most important elements can be identified.

**Roots:** It is a base and a foot extending to the depths of the earth, and a large number of fibroids.

**Stem:** The stem is in the date palm, which is wooden and its shape tends to the straight cylindrical shape. Its surface is covered with the remnants of excess calyx from the pruning of palm fronds over the years.

**Palm leaves:** Palm leaves in date palms is the basis of the fronds, after the removal of the palms, whose length ranges between 3-7 meters. The fronds, when trimmed green, and with increasing drought, turns white.

**Clove:** The broad parts of the central branches of palm fronds, the part connected to the trunk wrapped in the heart.

**Arajin:** The trees in the dates palm is the root that bears the fruits of the palm, and lengths of the trees vary according to the strength and activity of the palm, but its colors tend to light yellow or orange. This difference in color helps to differentiate between date varieties.

**Cores:** The nuclei in date palm is the inner hard part, which mediates the fruits of dates and weighs from one gram to 3 grams and the length is between

1.2-3.0 cm. The width ranges from 0.5 – 1 cm according to the quality of dates.

**Fiber:** The fiber in date palms is a tissue flap that is connected to the edges of the crutch, forming a fibrous cover of vascular bundles in the form of Warp and weft. The Warp is in a sloping position during growth, which helps to expand during the growth of the palate inside.

A leaf is a branch of the leaf spread on its side and sometimes called "wicker" and is in batches of each batch containing three or five papers of the palm and these papers relate to the italics on the leaf. (Ibraheem Badran - Reference (1)) - (Awatef El-Marsafy - Reference (7) p. 25).

The types of palms include:

- The palm of the clods: It spreads in the Antilles.

- Nakheel and Shantouya: It is spread in the United States.

- Palm trees: growing in Mexico and California.

- Sagoet or palm starch: native to Malaysia and New Guinea.

- Australian palm: This name is known and used in decorations.

- Jubaya palm: characterized by coconut-like yeast and grows in Chile.

- Coconut palm: spread throughout the tropics.

- Dwarf palm: It grows widely in temperate medium areas.

- Wax Palm: Native American South America.

- Dum palm: called the African Dom tree and spread in Egypt and Sudan.

- Palm dates: spread in desert areas in the Middle East.

(Abdelkader, 2003: 71)

The main species of date palms include:

<b>Wet Dates</b>	<b>Dry Dates</b>
Andawang	Serkaay
Maghzouz	Shamya
Hayany	Ghazaly
Zaghloul	Samery
Hihazi Red	Seda
	Friji

(Journal of the Arab Union, 1984: 21,22)

The date palm is one of the most important palm tree plants, which are characterized by many ores of distinct nature, which can be used and formed according to their trends in many products. The soft elements can be formed in woven products and solid elements can be formed in containers, Decorative products. The average values of date palms were calculated, taking into consideration most date varieties as well as the samples of wood selected for comparison purposes, as well as the durability values

of beech and white wood In the American specification AstMD 555-88.

(Palm and date processing in the Kingdom: 51)

The most important characteristics of palm fronds are:

1- The coefficient of elasticity in the bending of the fronds is higher than that of the American white and fibrous wood and is given the value of beech and American hardwood.

2. The maximum curvature of the fronds is given a value similar to that of beech, which is much higher than the softwood, softwood and American hardwood.

3. The maximum pressure of the fronds lies between soft and hardwoods.

4 - Maximum stress of the tension of the fronds far exceeds the white wood and less than the value of beech

**Second:** Forming and artistic capabilities based on Palm ores:

Figure 3 illustrates the elements of palm trees, technical methods and outputs

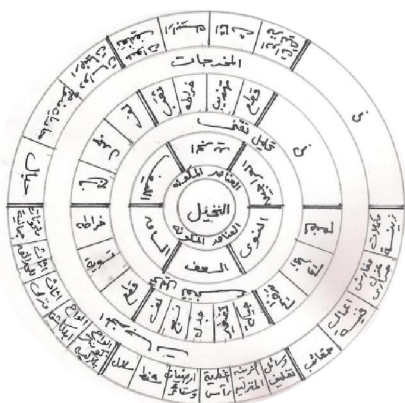


Figure (3)

A diagram showing Palm tree elements, technical methods and outputs (works and products).

In analyzing the previous figure, we see the huge diversity of the components of palm trees, which contribute to the manufacture of environmental products that can be used to develop our society through a group of medium, small and micro industries, which can be presented as follows:

- Micro-industries, carried out by family members, or some workers such as the works based on the technical composition of dates, such as decorations and thermal insulation plates used on the dining table, as well as three-dimensional art and bags. In addition to many products produced from fiber textiles such as ropes, woven containers, floor mats that need simple manual hooks, as well as packaging of agricultural crops. This types does not necessarily require in-depth training. On certain skills in big institutions, whether for employees or employer.

- Small industries, satisfying the necessary needs of the community such as Arabesque, furniture, some household items and Packaging and containers. These products are the product of the fronds. These industries needs trained workers and can be the vast majority of workers from the local community.

- Medium industries rely on the capital more than the former types of industries, where the production of semi-manufactured industries can be produced from the stalk of palm trees and the frond, such as the species of wood (Contrabakip). As well as household furniture. Where some equipment, machinery and production requirements are relatively simple. As well as to the first training of workers, as well as the need for centers for testing materials and quality control, especially for export-oriented products.

In order to analyze the products and occupations resulting from the elements of palm trees, we find that there are industries that satisfy the needs of recreational luxury, and the industries of saturation of artistic values and household decorations, in addition to semi-finished products, which can be replaced by the palm tree and the palm of the imported wood such as the Arabesque substitute for beech and black countertops Substitute for pine wood, and veneer substitute for poplar and beech trees (Reference No. "18").

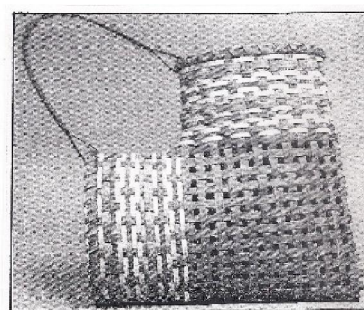


Figure (4)

A group of products produced from palm tree materials (Abdelkader, 2008).

**Third:** Utilization of the elements of palm trees as an environmental and artistic Inspiration:

The aim of the experiment is to benefit from palm trees (palm fronds) in the manufacture of



products in line with the design systems developed with a contemporary Saudi identity and economic development.

#### Experiment elements:

- 1- Palm fronds
2. Heritage in the Kingdom of Saudi Arabia

1 - palm fronds: the reasons for selecting palm fronds.

After reviewing the experiments carried out by some specialized centers, such as the Industrial Development Center at the Faculty of Engineering, Ein Shams University -Egypt and the Munich Institute for Wood Research, Germany, according to the latest international standards, these studies included the different effects of moisture change and water resistance, density and adhesion strength with wood veneer Or other materials, and bending strength in both directions compared to other natural materials.

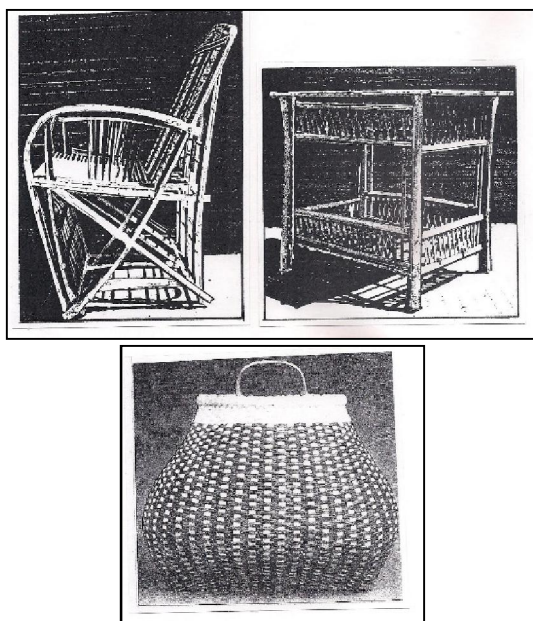


Figure (5)

The feasibility of the use of the fronds in the manufacture of some wood products has been demonstrated with an appropriate economic value at the Center for Design and Technological Development (Gharib, Social Fund for Development in Egypt). Dr. Walid Abu-Batah, member of the Scientific Committee for Agriculture protected by the Ministry of Agriculture, said the date palm is an important resource that is not exploited so far. It is used only in some simple handicrafts that are not commensurate with its economic value. Due to the absence of forests in Egypt and Saudi Arabia, therefore, there is a shortage of wood production and the state budget it is time to benefit from the palm tree and to benefit from it in proportion to its real economic value instead of

being burned to get rid of it, which leads to pollution of the environment. (agri.ahram.org.eg).

As Saudi Arabia is one of the largest palm-growing countries, it is the second country in the world to have palm plantations. In addition, date palm cultivation has become part of the afforestation projects in the Kingdom, You will find in each garden or street palm types of different productive or decorative. ) In afforestation projects - Ministry of Agriculture).

Based on the foregoing it has been chosen palm fronds to implement:

- Frond Arabesque.
- Strips of frond.

To be then used in the design of works of art with a Saudi identity and economic development.

Stages of implementation of the proposed product:

The stages of production include a set of basic processes. These stages are summarized in:

- 1 - stages of preparation of the frond.

The classification of each part of the branch according to the nature of the production, its dimensions and the forms that can be obtained, and the preparation and processing of the frond in the following stages:

- Remove the side branches from the main branch and take by manual means.
- Cutting lengths according to need, as well as branch thickness.
- Adjustment and refinement of edges.
- Sanding produced parts.

These processes are generally performed to obtain homogeneous parts that can be used in various manufacturing processes.

Side assemblies: -

To obtain multiple sheets of frond, some of them are punched and assembled using an iron wire - and using natural glue if necessary.

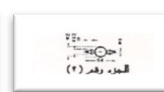
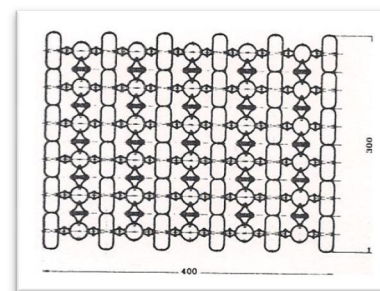
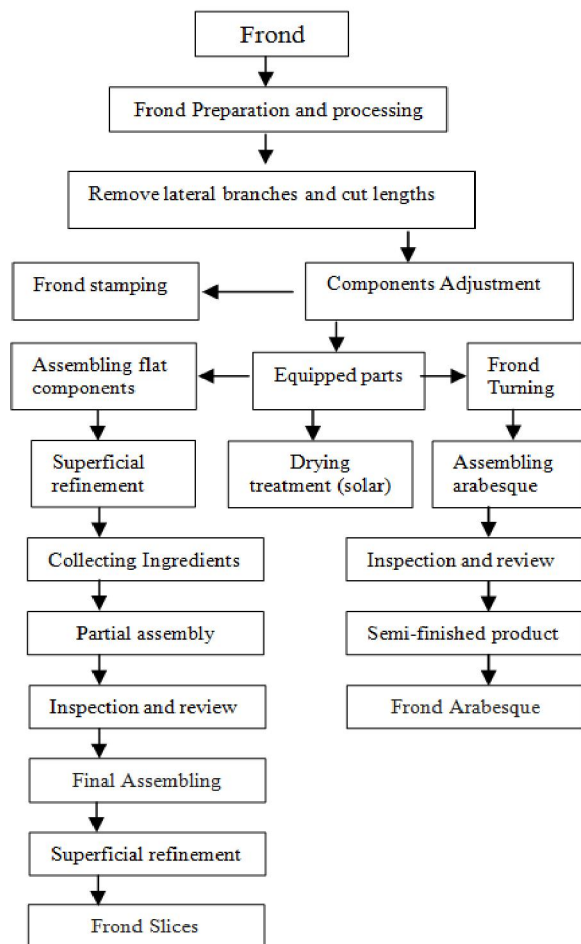
Slitting processes for parts: -

Because of the cohesion of the fibers of the frond and its ability to resist, in the case of small-angle annealing, an internal convection on the surface, allowing the fibers to fold slightly to the possibility of making the soft easily, either in the case of large corner corners can be made more than one surface by identifying a homogeneous, It has the capacity to expand and to equalize the proposed bending level.

Turning operations: -

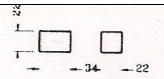

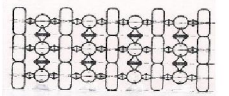
After the processing of the frond according to the proposed lengths, the frond is drawn according to the proposed form and its nature.

Assemblies: -


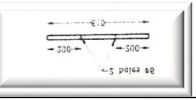
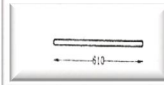

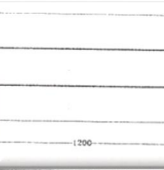


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Production of Part 39 Processing of the frond with	Hand tools (Natural Adhesive	

Operating procedures	Used Tools	Executive drawing
dimensions $22 \times 22 \times 34$ mm		
Turning parts		
Collection of parts (1), (2) and (3)		



Operating Steps		
Production of part (1) processing the frond dimensions $610 \times 20 \times 20$ mm	Hor	
Side Hole	Dr	
Assembling of leaf slices (pinch)	Ma m	
Surface adjustment and edge adjustment	Eme	
Finishing and surface treatment (varicose varnish) + oxidation colors		

## 2. Heritage in the Kingdom of Saudi Arabia

Heritage is a manifestation of the individual and collective creativity of the nation during its long history. It is the best expression of the cultural identity of the nation. The peoples that are worthy of survival preserve the heritage and derive the originality from it. Therefore, the balance is the home of civilized development and the preservation of originality and inherited values. Abu Jabal, 2008).

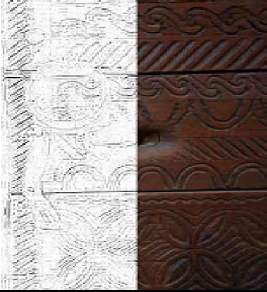

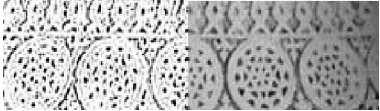

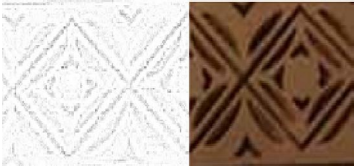
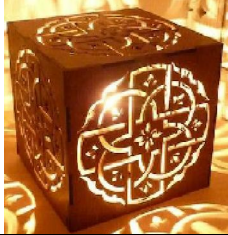
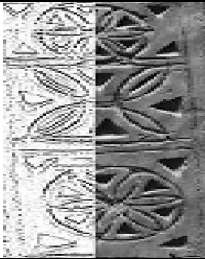

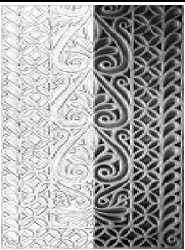

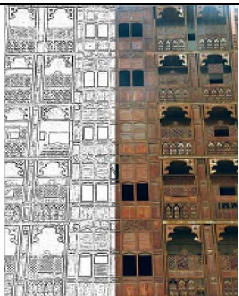
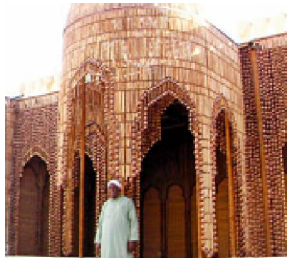
Heritage is a distinctive cultural form that reflects human characteristics and is transmitted from one generation to another. There are many fields of heritage, including cultural heritage, architectural heritage and folklore.

The Kingdom of Saudi Arabia is rich in heritage diversity due to the diversity of the Kingdom's regions in terms of geographical nature, customs and traditions, where it boasts an authentic heritage. It is a witness to the existing culture of reference model for every nation that wants to preserve its identity. Heritage can be used in the decoration of some palm leaf products.

This is illustrated in table (1): Designed by the researcher - the images (of the urban heritage landmarks in the Kingdom of Saudi Arabia, the General Authority for Tourism and Antiquities Turath Book. pdf).

Picture	Region	Place Name	Engraved decorations
	Madina El Monawara	Mosque of the two tribes	
	Qassim area	El-Maznab	
	Qassim area	El-Bassam House	
	Al Baha area	Zee Ain Village	
	Al Baha area	Zee Ain Village	
	Eastern Region	Ibrahim Palace	



	Asir Region	Shada Palace	
	Hail	Al Qashla Castle	
	Riyadh region	Musmak	
	Riyadh region	Ghat Town	
	Jazan area	Ahmed El-Rifai House	
	Makkah Region	Historical Jeddah	

#### Analysis:

The implementation of the proposed products is based on the use of date palm, and the machines that are suitable for use of regular labor and suitable for

the raw materials produced by the palm trees available in the Saudi environment, both in urban and rural areas, where the skilled labor is low on advanced or complex technology. Products derived from palm

trees depend on the secondary output (wicker industry - frond) either the return of work represents the largest proportion of the returns of the elements of production.

On the other hand, it is characterized by high flexibility and the possibility of rapid change, which helps to achieve a quick response to a new request. In addition to the technical vision of the work and the use of the decorations inspired by the Saudi heritage of contemporary artistic vision, allowing the privacy of Saudi products.

The purpose of the art produced by the elements of palm trees, and the variety of designs and works of art resulting from palm trees, has become a global language with its distinctive features as a language of formation, through which the artist is connected with the owner and its employees around the world links them through the work produced by the work related to They deal with raw materials, they all deal with raw materials by specific technical methods, and formality is unlimited in accordance with the rules and laws relating to the elements of the work of art and therefore we emphasize that the work of different materials of the elements of palm trees is one of the areas of art practice, Innovation in one of two forms:

1- Creating Products that have useful functions besides their artistic value.

2 - The creation of objects with a purely aesthetic objective, including the stereoscopic and flat, which is totally controlled through the environment and philosophy and traditions of the heredity (Hassanein and Ahmad, 1984).

The best way to preserve the intellectual property right of the artist and the popular manufacturer is to register samples of environmental products.

Results:-

1. Planning for the future of traditional crafts in Saudi Arabia, a humanitarian process and social responsibility, aims at looking at the future of creativity and its impact on successive generations.
2. The development of environmental products in general and products from palm trees in particular is an urbanization that reflects an integrated understanding of the most important role of this type of culture as a community school of history.
3. Artistic production from palm trees is no longer a means of benefiting from free time. But with planning it can be an economic path into the national income system.
4. The study found that the effect of modernity on the existing change of the artistic design types of palm products, can guide these products to new utilitarian designs and innovative aesthetic types.
5. Registration of samples of environmental products is the best way to preserve the

intellectual property rights of the artist and the popular manufacturer.

6. Utilizing the components of palm trees - Frond - in the production of artistic works of aesthetic and productive benefit interact with the need of the community, and reflect the cultural characteristics.

#### Recommendations:

- 1) Formation of a data bank on palm industry and communication with relevant international Institutions.
- 2) Preparing preliminary feasibility studies for small projects to assist local investors in establishing environmental industries.
- 3) Provide free investment service to the craftsmen and provide them with information on the available international markets and market capacity for the products they manufacture.
- 4) Establishment of production centers in different regions - as well as testing materials and quality control.
- 5) Establish permanent exhibitions to display quality palm products and sell them to the public and visitors.
- 6) Issuing tourist booklets on products made from palm materials.

#### Corresponding Author:

Tibra Jameel Khusaifan  
Associate Professor,  
Faculty of Arts and Design  
King Abdul-Aziz University  
Kingdom Of Saudi Arabia  
E-mail: [tibrjameel@yahoo.com](mailto:tibrjameel@yahoo.com)

#### References

1. Badran Ibrahim, Encyclopedia of the World's Plant - Osama House for Publishing and Distribution - Jordan - Amman - First Edition
2. Gharib Ibrahim, Studies of the Social Fund for Development in Egypt - Center for Design and Technological Development.
3. Monroe Thomas, Development in the Arts - I2 - Translation of the Arab Institute for Studies and Publication - Beirut 1992.
4. Marai Hassan - Palms and the manufacture of Dates in the Kingdom - Riyadh - Ministry of Agriculture and Water. .
5. Hassan Saeed - Technological development of palm fronds and its use in the furniture industry - published research - Journal of Studies and Research Helwan University 2003.
6. Saber Shaimaa - The artistic potential of palm trees as an input to achieve the aesthetic values of the movement in the art works - Unpublished

- message - Faculty of Art Education - Helwan University - 2008.
7. Fathallah Awatef Al-Marsafi - synthesis of some palm trees to achieve innovation in the field of art education - unpublished master thesis - Helwan University - Faculty of Art Education 1976.
  8. Fouad Funoun Abdelkader - Palm products as a source of vision for the innovation of Contemporary artistic works derived from the Saudi heritage - Unpublished MA thesis - Faculty of Education and Home Economics and Art Education - 2003.
  9. Bahgat Mohamed - palm trees in Egypt - Ministry of Industry - Department of orchards - Cairo - 1998.
  10. Khaled Hassan Hassanein, Aref Abdel Moneim Ahmed, Dates and processing of cellulose palm The Arab Union for Food Industries - Article - Iraq - Baghdad - 1984.
  11. Zinhom Mohamed - Studies and Environmental Sciences - Al-Mundhar Press - Cairo - 2008.
  12. Group of researchers - traditional crafts - Asala Association for the care of arts - Cairo - 2004.
  13. Baalbaki Munir - Encyclopedia of the resource - the Department of English Knowledge - Dar Al-Ilm for millions - Beirut.
  14. Hassan Nader Ibrahim - Attia Mohamed Zamzam et al. - mechanical properties of palm fronds - published research - Ain Shams University, Cairo 1993.
  15. Features of Urban Heritage in the Kingdom of Saudi Arabia, General Authority for Tourism and Antiquities Turath Book.pdf.
  16. [www. Tran 33.com/vb/t3333ghtmi](http://www.Tran33.com/vb/t3333ghtmi)
  17. [www. 3Fari. Com](http://www.3Fari.Com)
  18. [www. 3Zba. Com](http://www.3Zba.Com)
  19. [www. KenanonLine. Net/page/3153](http://www.KenanonLine.Net/page/3153)

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