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## NATURAL PATTERNS IN THE ENVIRONMENT AND THEIR POTENTIAL USE AS MOTIFS FOR DECORATING GHANAIAN INDIGENOUS VEG-TANNED LEATHER SURFACES

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### ABSTRACT

Leather producers in Ghana often do plain dyeing, they however, lack patterns that are attractive to enhance the surface appearance. As a result, when the leather is being used to make artefacts they apply stamping, carving, embossing, scorching, applique or printing just to register designs on them in order to enhance their aesthetic value, and these are only meant to be attracted to those who use the leather. It is for this reason that this research seeks to investigate into natural patterns as decorative motifs. The descriptive experimental research approach was used for the study. Simple random sampling technique was adopted to select suitable natural patterns as population for the study. Moreover, observation was the main tool for collecting data for this study. Findings from this study revealed that natural patterns may be grouped into organic (living things) and inorganic (non-living things) respectively. Zebra possesses bold and simple stripes (black and white) patterns which can be captured and manipulated with CorelDraw software to form a motif for printing on leather surface. With regards to tiger body pattern, it was found to have texture which can be converted to bitmap and further manipulate it. The body pattern of genet cat was identified to possess black and white pattern which can be converted to bitmaps and reorganized to form suitable motif for screen development. African Python has an intricate interwoven design arrangement which can be captured and used directly as motif without manipulation. The skin pattern of Crocodile was also found to possess a protruding rough texture which creates a feeling of an embossed surface. Findings from the selected wing insect patterns through critical observation revealed that butterfly wing possesses simple organization of parts that could easily be converted to bitmap. Tree barks have rough textured surfaces with fascinating cracks. Findings from selected leaves possess interesting shapes and veins with very fine textured surface. This study concludes that natural patterns in the environment can be developed to enhance the surface appearance of Ghanaian indigenous veg-tanned leathers.

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## INTRODUCTION

Design is the basis for the development of any innovation. Thus design influences product appeal and patronage. Various surfaces exist for the execution of designs. Among these are wood, metals, walls, paper, fabric and leather just to mention a few. The Prehistoric folks, who lived amid the Ice Age around 500,000 years back, were likely the first to utilize skins and hides of animals to shield their bodies from the elements (Boahen, 2005). Amenuke et al (2005) assert that the natural environment is the biggest influence of design inspiration and this is seen in every sphere of man's life. In many advanced countries where trade in Leatherwork is a major business, it has advanced to a very high level where innovative ideas and designs

are registered on the surfaces of leather with interesting techniques to decorate and enhance the appearance (Boahin, 2010). In Ghana both students and professional leather workers or artisans in the small scale industries have made frantic efforts to create designs and make several leather artifacts (bags, wallets, footwear, clothing, upholsteries, etc.). Effective and fascinating leather decorations promote high patronage of leather materials and its products. Leather belongs to a group of raw materials known as secondary raw materials. People purchase locally made leather for various activities. Although local tanners endeavor to give colour to leather or treat leather surfaces to improve its aesthetics or attraction by doing plain dyes, they have deficit in knowledge on the available pigments for leather enhancement. In addition to this, tanners have also made frantic efforts to enhance leather surfaces by giving it multi-colour effects through marbling technique. Since these colours are limited, it

has also limited the availability of variety of leather colours on the market. Colour limitation has therefore brought about inadequate variety of leather colours on the market. In this era of competitive market structures and influx of imitated leather materials, it has therefore become necessary for the researcher to select interesting natural patterns within the environment to enhance Ghanaian indigenous veg-tanned leather surfaces. This will bring dynamism and promote creativity with respect to leather decoration. This study therefore looks at how suitable natural patterns could be adopted and idealized from the environment into motifs to enhance Ghanaian indigenous veg-tanned leather surfaces.

## LITERATURE REVIEW

**Concept of Environment:** Environment as explained by Nyante (2010) is considered as the conditions or settings that encompass organism; or the sum of conditions encompassing an organism or collection of organisms, particularly the mixture of outward physical conditions that affect and impact the development, improvement, and existence of organisms. The growth and development of an organism will vary from one environment to the other as the environment will dictate the mode of life to be adopted by the organisms in a given environment. The emphasis of environment in this case is centered on living organism than non-living. Thirmurthy (2004) shares a similar view with Nyante as he opines that, the word environment portrays the total amount of physical and biotic conditions impacting the reactions organisms. More precisely, the total of those portions of the hydrosphere, lithosphere, and atmosphere into which life infiltrates is the biosphere. There are no characteristics of lasting dwellers of the atmosphere, even though the air is crossed by different kinds of animals and plant propagules. Of the hydrosphere, there are two main biomes, aquatic and fresh water, of the lithosphere there is one land. Environmental Education (2015) also asserts that; "Environment is a term which depicts in total, all the outward forces, impacts and conditions which influence the life, nature, conduct and development, growth and maturation of living organism." According to Your Article Library (2015), the term environment was gotten from a French word "Environ" which intends to surround. It alludes to both abiotic (physical or non-living) and biotic (living) environment. The term environment refers to the surroundings in which organisms inhabit. Environment and the creatures are two dynamic and intricate constituent of nature. Environment controls the life of the organisms as well as humans. Human beings communicate with the environment more energetically than other living creatures. Generally environment alludes to the materials and forces that surrounds the living organism. It comprises of atmosphere, hydrosphere, lithosphere and biosphere. It further states that, environment is the overall circumstances that surrounds us at a particular point of time and space. It is made up of the interacting systems of physical, biological and cultural components which are interwoven both discretely and collectively. Environment is the sum total of circumstances in which an organism has to subsist or retain its life process. It impacts the growth and development of living organisms. Your Article Library (2015), further stated that the environment is the whole physical and biological system surrounding man and other organisms along with various factors influencing them. The factors are soil, air, water, light, temperature and so forth. These are called Abiotic factors. Other than the abiotic factors, the environment is particularly affected by biotic factors which consist of all types of life like plants, animals, microorganisms and so on. Again, Nyante (2010) considers the environment as the surroundings. The effect of the environment will either be positive or negative. Positive in the sense that some of the environments will create conducive atmosphere for creativity, hence development, and negative in that certain environment will hamper creativity and development. When life in a given environment is comfortable, then there is no need for creativity because all is well.

### Types of Environment

The natural environment, usually called the environment, is a term that comprise of all living and non-living things that happen naturally on earth or certain parts of it (for example, the natural environment in

a country). The natural environment as a term, can be distinguished by few key components:

- Complete countryside units that work as natural systems without immense human mediation, together with all plants, animals, rocks and so on and natural phenomena that happen inside their limits.
- General natural resources and physical phenomena that lack clear-cut boundaries, for example air, water, and climate, in addition to energy, radiation, electric charge, and magnetism, not starting from human action.

The natural environment is juxtaposed with the constructed environment, which includes the zones and constituents that are greatly affected by man. A geographical region is viewed as a natural environment, if the human influence on it is kept under specific restricted level. This level relies on upon the particular context, and changes in varied areas and contexts. The word wilderness, then again, describes the areas with no human intercession whatsoever or almost so which may be dangerous to human life. The social environment, otherwise called the milieu, is the indistinguishable or parallel social positions and social roles as a whole that impact the people or a group. The social environment of a person is the culture that he or she was trained and/or survives in, and the individuals and institutes with whom the person relates. A particular social environment is possible to make a feeling of unity among its members, who are more probable to retain together, trust and support each other. Individuals from the same social environment will frequently think in parallel styles and patterns notwithstanding when their decisions vary, (Nyante, 2010). Constructed environment is the total of the physical surroundings and conditions built by human beings, in contrast to those environs and circumstances resultant from the natural environment. Printing is one of the methods used for decorating leather surfaces and other art forms. There are different types of printing methods which are employed at different sectors, but the most commonly used method is the screen method of printing. This method is adopted for this project. Generally, conventional designs, geometric patterns, adinkra symbols as well as abstract designs are used in developing a screen, the use of natural patterns for screen development is not common. The environment serves as a support for human existence, generally, designers depend on it as a source of inspiration and medium for art products (Nyante, 2010).

**Concept of Aesthetic:** Amenuke et al (1999) assert that aesthetics is the study of the theory or the science of beauty. It talks about all the qualities that are connected to beauty, particularly in the arts. The qualities of the arts include vision (seeing), sound (hearing), motion (movement), taste, touch, and emotions. Obeng-Tweneboah (2003) shares a similar view as he affirms that aesthetic is the science of beauty in the arts. It involves analytical approach in theory and practice of what is beautiful as far as art is concerned. He further states that, aesthetics deals with qualities related to beauty. The senses play a major role in determining beauty. The things we see, smell, hear, taste, and touch can have their different qualities. According to Frolove (1984), aesthetics is the science of the law-governed aesthetical incorporation of the world by man, of the principle and forms of creative work based on laws of beauty. The word "aesthetics" was not generally utilized in English until the start of the nineteenth century. Its utilization originates from the German *ästhetisch* or French *esthétique*, (both from the Greek *αἰσθητική* meaning a perceiver or touchy) and largely enabled translations of Immanuel Kant. It signified "the science which treats of the state of sensuous insight". Somewhere else, the theorist Alexander Gottlieb Baumgarten had interpreted it in German as meaning "criticism of taste" regardless of Kant's endeavors to correct Baumgarten, this definition survived and Baumgarten is ascribed with originating the current use of the term. Therefore, aesthetics is also an essential part of critical theory (Avenorgbo, 2008). Allen (2002) as cited in Avenorgbo (2008) also defined aesthetics as the field of theory that studies the ways in which individuals encounter the world through their senses. It is particularly connected to the recognition and appreciation for specific items when they strike the senses in a

satisfying way. This author further explains that aesthetics mostly concentrates on works of art and other related objects that are intentionally designed for people to appreciate. Nevertheless, he indicates that aesthetic appreciation is not restricted to art but it is often directed to the whole wide world. Philosophers and sages over the world have talked about beauty and art for centuries, yet the subject was formally eminent as a free philosophical discipline in the eighteenth century by German savants. Prior to this period, authors saw the study as inseparable from other key topics, for example, morals in the Western custom and religion in the Eastern. Aesthetics, similarly spelled esthetics, the theoretical study of beauty and taste. It is closely connected to the philosophy of art, which has to do with the nature of art and the ideas in terms of which individual works of art are interpreted and assessed (Encyclopedia Britannica, 2015).

**Aesthetic Value:** According to Springer (2013), Aesthetic value is defined as the value that an object, incident or state of affairs (most paradigmatically an art work or the natural environment) has in virtue of its ability to bring about pleasure (positive value) or displeasure (negative value) when treasured or practiced aesthetically. In relation to this, Stecker (1997) emphatically states that: "Anything that is valued is valued in a diverse ways. Articles of art regularly have emotional value, historical value or economic value. Wilderness can have financial value and also recreational value. But wonderful artefacts are believed to have a unique sort of non-instrumental and non-utilitarian value that is of vital concern when they are assessed as works of art. This value is assumed to be beauty. Therefore, it is more probable that beauty is a specific sort of the value in question. The aesthetic value that an art work possesses (and people would relate this to the natural environment) deals with the kind of experience it offers when engaged with properly. If it offers pleasure in virtue of our experience of its beauty, elegance, gracefulness, harmony, proportion, unity, etc., we say that it has positive aesthetic value. If it offers displeasure in virtue of ugliness, deformity or disgustingness we may say that it has negative aesthetic value. One significant point is that the pleasure or displeasure backing aesthetic value is best supposed as directed at the object in question rather than being simply instigated by it". Though it is hard to fairly evaluate aesthetic value, it regularly becomes an essential determining factor in total value; things people see as eye-catching tend to be in greater demand, and will cost more than similar objects without the aesthetic element.

## RESEARCH METHODOLOGY

The qualitative research design approach was adopted for the study by the researchers. The qualitative research paradigm was used since this research type provides in depth description and clarifications of phenomenon studied instead of providing and analyzing figures (Encarta Dictionary, 2009). This research approach seeks to identify and select natural patterns that exist in the environment and analyze their potentials for use as motifs for decorating Ghanaian indigenous veg-tanned leather surfaces. In this, the descriptive and experimental research methods were used for the study. According to Gay (1992), the descriptive research method is designed to acquire information regarding the present situation of phenomenon. They are focused towards deciding the nature of a condition as it exists during the study. The intention is to explain what exist regarding variables in a circumstance. It involves gathering data so as to test hypotheses or to provide solutions to questions about the present characteristics of the study. The descriptive research method was found fitting because it describes "what is". It involves the description, recording, analysis and interpretation of conditions that exist. It deals with comparing and contrasting and tries to find out correlation between current variables. On the other hand, Experimental research involves determining the casual relationship between two or more variables by direct manipulation of factors that influence the variables. It also calls for control of other variables that can affect the outcome of the manipulation (Adentwi and Amartei, 2009). This research method was adopted by the researchers because they wanted to ascertain and describe what will be when certain natural patterns are carefully

controlled or manipulated. It was also employed in order to analyze the suitability and possibilities of developing motifs from natural patterns to enhance the surfaces of Ghanaian indigenous veg-tanned leathers. The population for this study comprised of natural patterns of objects of different kinds collected. The study areas include Kumasi Zoo, Kakum National Park, Hands Cottage, Monkey Forest, Aburi Botanic Gardens and James Town (fishing community). These areas were selected because most of the natural patterns of objects needed for the study were found there. Because of the heterogeneous nature of the research work, simple random sampling method was employed by the researcher to choose the population for the study. This sampling method is applied when the case in the population falls into distinctly different groups. Since the natural patterns fall into different groups, the random sampling method offered the researcher the chance to randomly select samples from animals and plants respectively. The benchmark for choosing the population was that, the natural patterns should be simple and conform to replication and attractive for enhancing Ghanaian indigenous veg-tanned leather surfaces. Below are the categories of the population for this study:

- ❖ Category A – Animals (mammals, reptiles, fishes and insects).
- ❖ Category B – Plants (tree barks and leaves).

In this study, the researcher employed observation as the principal tool for data collection. In this regard, the non-participant observation approach was utilized by the researcher to observe various kinds of natural patterns that were readily available in the aforementioned areas and their suitability for the study. In collecting data for the study, the researcher painstakingly travelled to different tourist sites where most of the desired natural patterns suitable for the study abound and could be accessed. In Hands Cottage (Cape Coast) where crocodiles are in abundance, observation was made from a reasonable distance and shots of the reptiles were taken and its scales and body patterns were captured as well with digital camera. At the Kakum National Park (Cape Coast), different species of matured tree barks from the primary forest were closely observed and several suitable ones were captured together with their scientific names. From the Monkey Forest (Cape Coast), body patterns of caged wild animals such as monant monkey, crocodile, civet dog, scorpion, tortes and genet cat were closely observed and shots were taken from both short and long distance. In Aburi Botanic Gardens (Aburi, Eastern Region), a tour guide took the researcher round to observe closely different species of floral. Here, shots were taken from a close distance and their scientific names were recorded as well. At James Town (fishing community) Accra, the researcher observed closely different kinds of harvested fish from the sea at its shore. Shots were taken from both scaled and non-scaled fishes from varied angles and their names were also record. Lastly, Kumasi Zoo was visited by the researcher. Here, the researcher was led by a tour guide to the cage of some wild animals like gaboon viper, African python, slender snouted crocodile and dwarf crocodile, Nile monitor lizard and African Civet. Both close and distance observations were made respectively to capture the body patterns of some animals from different angles due to the dangerous nature of some of them. In the observation, special attention was paid to natural patterns that have simple and attractive features that could be used for screen development to enhance Ghanaian indigenous veg-tanned leather surfaces. Natural patterns of animals like zebra, tiger, butterfly and hemipterawhich were difficult to obtain but necessary for the study were accessed online.

**General Working procedure:** This aspect of the study addresses the research question; what natural patterns exist in the environment that could be identified and selected and analyze their potentials for use as motifs for decorating leather surface? Natural patterns come in diverse forms, and the researcher finds it more convenient to categorize them in a manner that would be easier to deal with in the study. Natural patterns may be grouped into organic (living things) and inorganic (non-living things) respectively. For the purpose of this research work, the researcher focused on the organic (living things) source only hence, the various natural patterns which were identified and captured for the study were categorized as follows:



**Category A:** Skin pattern of Animals (mammals, reptiles, fishes and insects)

**Category B:** Pattern of Plants (tree barks and leaves)

The categories of the aforementioned natural patterns were identified based on a critical observation from diverse natural environments respectively. Upon selection of potential natural patterns suitable for use as motif for decorating Ghanaian indigenous veg-tanned leather surfaces, a criteria was designed for selection under the above categories. In this study, the word potential as used to describe natural patterns means that, having the ability or capacity to be converted and used on leather surfaces as a motif for printing. In other words, the easy applicability of the natural pattern on Ghanaian indigenous veg-tanned leather surfaces. Below are the criteria or measures that were considered for the selection of the natural patterns for the study:

- Identification of different sources of natural patterns.
- Simplicity and conformity to replication.

#### Category A: Skin pattern of Animals

- With respect to skin patterns of mammals, ten (10) different mammals were identified and observed critically. Out of the ten skin patterns of mammals captured, three best ones were selected for the study because the patterns they possess are simple and can easily conform to replication. Below are the skin patterns of mammals selected for this study.



Source: <http://a-z-animals.com/animals/zebra/>

**Plate 1.1. Skin pattern of zebra**



Source: <http://spiritanimals.wikia.com/wiki/Tiger>

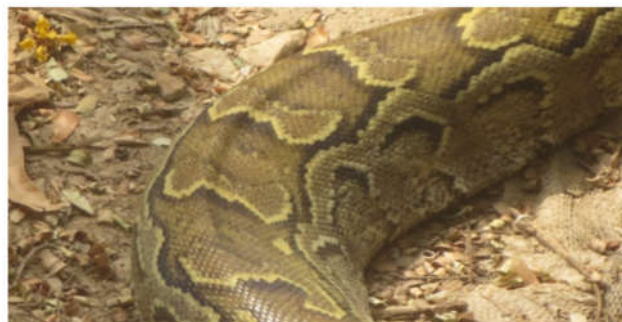
**Plate 1.2. Skin pattern of tiger**



Source: Monkey forest at Jukwa, Cape Coast

**Plate 1.3. Skin pattern of genet cat**

#### Skin pattern of Reptiles



Source: Kumasi Zoo

**Plate 1.4. Skin pattern of African python**

In selecting skin patterns of reptiles for this study, the researchers identified seven different kinds of reptiles. Based on simplicity and conformity to replication as a guide, two (2) of them were chosen to be developed as a motif to enhance the surface of Ghana indigenous veg-tanned leathers. The images below indicate the skin patterns of reptiles selected for this study.



Source: Hands Cottage at Cape Coast

**Plate 1.5. Skin pattern of crocodile**

**Skin patterns of fishes:** In this group, twenty various kinds of skin patterns of fishes were identified and captured comprising of scaled and non-scaled fishes. Out of the twenty varieties of fish skin patterns captured, two (2) of them were selected and used for this study. They were selected due to the attractive nature of their skin patterns and how simple they may conform to replication on the surface of Ghanaian indigenous veg-tanned leathers for enhancement. Below are the images of skin patterns of fishes selected for this study.



Source: James Town fishing community at Accra

**Plate 1.6. Skin pattern of Kokoi**





Source: James Town fishing community at Accra

**Plate 1.7. Skin pattern of Salmon fish**

**Patterns from wing insects:** The researchers identified and captured as many as ten (10) different species of patterns from wing insect. Two (2) were selected out of a total of ten (10) for this study. They were chosen because they are simple and also have the potentials for application on Ghanaian indigenous veg-tanned leather surfaces for enhancement. The following images show the selected patterns of insect wings for the study.



Source: [https://en.wikipedia.org/wiki/Monarch\\_butterfly](https://en.wikipedia.org/wiki/Monarch_butterfly)

**Plate 1.8. Patterns of butterfly wings**



Source: [https://commons.wikimedia.org/wiki/File:Hemiptera\\_jpg](https://commons.wikimedia.org/wiki/File:Hemiptera_jpg)

**Plate 1.9. Patterns of hemiptera wings**

#### Category B: Plants pattern

**Patterns of Tree bark:** In this class of natural patterns, the researcher identified and captured twenty (20) different species of patterns of tree barks with varied textures. Among the number of patterns of tree barks identified, three (3) were selected for the purpose of this study. This was because they possess fascinating textures that can conform to replication and register on Ghanaian indigenous veg-tanned leather surfaces for enhancement. The images below indicate the selected patterns of tree barks for the study.



Source: Kakum National Park at Cape Coast

**Plate 1.10: Pattern of Cinnamon tree bark**



Source: Source: Kakum National Park at Cape Coast

**Plate 2.1. Patterns of black ebony tree bark**



Source: Source: Kakum National Park at Cape Coast

**Plate 2.2: Patterns of Dubini tree bark (KhayaIvorenensis)**

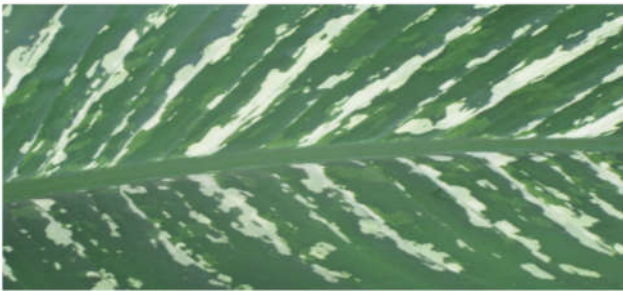
**Patterns of leaves:** Different kinds of leaves were identified and observed having unique patterns. Ten were captured and out of the total number indicated, two (2) were chosen for this study. They were picked based on their interesting shapes and veins, simplicity and applicability on Ghanaian indigenous veg-tanned leather surfaces for decoration. The following images show the selected patterns of leaves for this study.





Source: Dinim at Agona-Ashanti

**Plate 2.3. Patterns of Fern leaves**



Source: Kakum National Park at Cape Coast

**2.4: Patterns of Avocado trunkolis leaf**

## RESULTS AND DISCUSSION

The prime motive behind this research work is to identify and select natural patterns that exist in the environment and analyze their potentials for use as motif for decorating Ghanaian indigenous veg-tanned leather surface. The researchers realized that natural patterns come in diverse forms, and it will be more convenient and prudent to categorize them in a manner that would be easier to deal with in the study. Natural patterns may be grouped into organic (living things) and inorganic (non-living things) respectively. Therefore, for the purpose of this research project, the researchers focused on the organic (living things) source only hence, the various natural patterns which were identified and captured for the study were categorized as follows:

**Category A:** Skin pattern of Animals (mammals, reptiles, fishes and insects)

**Category B:** Pattern of Plants (tree barks and leaves)

The categories of the aforementioned natural patterns were identified based on a critical observation from diverse natural environments and the internet respectively. Upon selection of potential natural patterns suitable for use as motif for decorating Ghanaian indigenous veg-tanned leather surfaces, a criteria was designed for selection under the above categories. In this study, the word potential as used to describe natural patterns means that, having the ability or capacity to be converted and used on leather surfaces as a motif for printing.

Below are the criteria or measures that were considered for the selection of the natural patterns for the study:

- Identification of different sources of natural patterns.
- Simplicity and conformity to replication.

### Skin pattern of Animals

**Skin pattern of Mammals:** Ten (10) different mammals were identified and three (3) were selected for the study. Thus, zebra body

pattern, tiger body pattern and genet cat body pattern. Findings made through careful observation on zebra revealed that it possesses bold and simple stripes (black and white) patterns which can be captured and manipulated with CorelDraw software to form a motif for printing on leather surface. It also has the potentials to be easily developed onto a silk screen. With regards to tiger body pattern, it was found to have texture which can be converted to bitmap and further manipulate it. The body pattern of genet cat was identified to possess black and white pattern which can be converted to bitmaps and reorganized to form suitable motif for screen development. The images of skin pattern of mammals selected for the study are shown in plates 1.1, 1.2 and 1.3 respectively

**Skin pattern of Reptiles:** The researchers identified seven (7) different body patterns of reptiles and two (2) were selected for the study, namely; skin pattern of African Python and skin pattern of Crocodile. It was observed and realized that the skin pattern of African Python has an intricate interwoven design arrangement which can be captured and used directly as motif without manipulation. The skin pattern of Crocodile was also found to possess a protruding rough texture which creates a feeling of an embossed surface. The images of selected skin pattern of reptiles for the study are indicate in plates 1.4 and 1.5

**Skin patterns of fishes:** In this category, as many as twenty (20) varied patterns of fishes were identified and two (2) were selected for the study, namely; skin pattern of Kokoi and skin pattern of Salmon. Findings made through observation on the skin pattern of the selected fishes indicated that, Kokoi has smooth textured body surface with well-organized round spots found on the background with reasonable spacing. This is suitable for motif based on the interesting design organization it portrays. With regards to salmon, it was found that it has bold and simple repeated stripes on one side which can be easily converted to bitmaps and manipulated to form a motif for printing. The images of selected skin patterns of fishes for the study are presented in plates 1.6 and 1.7 in that order.

**Patterns from wing insects:** Ten (10) different kinds of patterns from wing insects were identified and two (2) were selected for the study. Thus butterfly wing pattern and hemiptera wing pattern. Findings from the selected wing insect patterns through critical observation revealed that butterfly wing possesses simple organization of parts that could easily be converted to bitmap. This makes it easy and suitable to be developed onto a screen as motif for printing. With regards to hemiptera wing pattern, it was indicated that interesting portions could be captured and cropped to attain the desired shape and organize it into suitable repeat patterns as motif. The images of selected patterns from wing insects for the study shown in plates 1.8 and 1.9 respectively.

### Plants pattern

**Patterns of Tree bark:** In this class of natural patterns, the researchers identified and captured ten (10) different species of patterns of tree barks and two (2) were selected for the study. They were Black Ebony tree bark and Dubini tree bark. Findings from the selected tree barks through careful observation indicated that both tree barks have rough textured surfaces with fascinating cracks. They can easily be converted to bitmap and used directly as a motif without adding or subtracting ideas. It was also realized that a desirable portion can be captured and manipulated rather than using the entire tree bark as motif. The images of selected patterns of tree bark for the study are presented in plates 1.10, 2.1 and 2.2 in that order.

**Patterns of Leaves:** Different kinds of leaves were identified and observed having unique patterns. Ten (10) were captured and out of the total number indicated, two (2) were chosen for this study. In the light of careful observation and analysis, it was found out that the selected leaves possess interesting shapes and veins with very fine textured surface. They were also observed to have simple and applicable patterns to serve as a motif for printing on leather surfaces. The images of selected patterns of leaves for this study are indicate in plates 2.3 and 2.4 respectively.

## CONCLUSION

The outcomes of the study have revealed the possibilities of developing ideas from natural patterns in the environment for enhancing the surface appearance of Ghanaian indigenous veg-tanned leathers. The success of the research work is an inspiration or motivation for tanners, students, and leather artisans to explore this technique of using natural patterns as decorative motifs for leather surface enhancement through screen printing. The study brings to bare creative development and use of skills and understanding of transforming natural patterns into motifs. The screen printing technique encompasses critical observation and careful manipulation of motifs, tools and equipment employed for the various procedures. The patterns (ideas) derived from nature could be used in decorating Ghanaian indigenous veg-tanned leather surfaces for a specific end-use. The study also revealed the following; suitable motifs can be developed from natural patterns and printed on leather surfaces within a short period and this will save cost and time, this technique of screen development needs a good sense of colour since motifs are not painted. The researcher concludes that patterns (ideas) sourced from the environment can be manipulated in different ways by adding and subtracting ideas to form suitable motifs and print them onto Ghanaian indigenous veg-tanned leather surfaces for enhancement. The application of patterns developed from nature on natural leather ultimately emphasize the value for preservation of nature; whilst animals are reared for their meat and the manufacture of leather, trees when adequately planted and preserved for wood, provide in terms of cover patterns, aesthetic feel of comfort. This thus emphasize the need for preserving nature for the immense benefit it can provide for humanity.

**Recommendations:** The benefits of manipulating natural patterns derived from the environment and applying them on leather surfaces through screen printing is of great significance to tanners, students, and leather artisans. The researcher suggests the following recommendations for consideration:

- i. The technique of adopting natural patterns (ideas) from the environment for enhancing Ghanaian indigenous veg-tanned leather surfaces through screen printing should be introduced into the leather curriculum especially the second cycle institutions to foster creativity and interest in designing.
- ii. Tanners, students and leather artisans should experiment with other ideas in the environment and also other leather embellishment techniques to bring varieties in leather decoration.

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