

Micro cell art: innovated inspiration source of printed soiree dresses

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Abstract:

One of the crucial and fundamental sources for inspiration for artistic and design work in the various branches of the arts is the natural world. In the field of ready-made garments, the natural environment plays a major role as a rich source of inspiration for wonderful clothing designs, where nature can be relied upon to draw inspiration for the lines, colors and texture of the dress sometimes. Recent years have witnessed the convergence of science and art in creating artistic creations in various fields, and the aesthetic image of bio cells under the microscope lenses and their irregular technical and structural formations and the diversity of textures and plastic blocks of the cell as well as the harmonious and homogeneous color mixture is one of the most important stimuli for the interest of any designer, and that was a motive for the researcher to Choosing it as an inspiration for soiree dresses for women, which prompted the researcher to search for more pictures of these inspirational cells to design a group of(6) innovative designs of soiree dresses and to make a questionnaire for five design criteria, as the first design achieved the highest rate of quality.

Keywords:

Art and Science, Sources of inspiration, Bio cell art, printed fabric

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Introduction:

One of the best sources of inspiration for any designer, but particularly for fashion designers, is nature. There are many elements of nature all around us, but what has recently captured the attention of the world is the precise, artistic shape and incredible structural organization of numerous different bio cells when viewed through microscope lenses.

We find these cells as unique artistic paintings because of their great diversity of colors and a unique artistic merging between colors and design elements. For this reason, this research was adopted as a rich and distinctive artistic source for design, especially in soiree wear for women, as women have many requirements in soiree wear. It is the most important piece of clothing that women care about because it is associated with many important occasions. Soiree wear requires a lot of distinction and uniqueness in shape and colors, and the more diverse the sources of inspiration in design, the more attractive and distinctive it becomes.

Research problem:

The research problem lies in trying to answer the following question:

- 1- What is the extent of benefiting from the forms of structural and artistic systems of micro cell art as an inspiration source in finding new formulations for printed soiree dresses fabrics?
- 2- Can this resource help to create soiree dresses with unique artistic formulas that keep pace with the times and modern fashion trends?

Aim of the Research:

- 1- Trying to develop the aesthetic and artistic taste of those interested in fashion design.
- 2- Using new sources from nature as a rich source of inspiration.

Research's importance:

- 1- Nature is an endless source of creativity, it an interesting source for fashion designers.
- 2- Work that is creative and inventive is not created in a vacuum; rather, it is influenced by and interacts with the surroundings.

Research's Hypothesis:

The research supposes that:

- 1- There is a positive relationship between the micro cell art structure that can enrich the design of soiree dresses for women.
- 2- There is a positive relationship between the standards of the basics of good design through the combination between printed and plain fabrics in women's soiree dresses.

Research Methodology:

The research followed two methods: (the descriptive and analysis method) & (Experimental method).

Review of literatures

1-Art of micro biology cells:

Science and art are typically regarded as having very little in common in terms of views and techniques, but occasionally something particularly beautiful and surprising might result from their combination.

Microscopy could offer a high-resolution image of nature's works while also highlighting their inherently beautiful qualities. Human or non-human cells can create images that are just as beautiful as those found in art(Antigoni, others:2017).

Microscopy techniques: Two main microscopy techniques are used by artists: Transmitted Light Microscopy and Electron Microscopy (Spector and Goldman: 2006).

The general term used for any sort of microscopy in which light is transmitted from a source on the

specimen's opposing side to the objective lens is "transmitted light microscopy." To get a useable image in the microscope, many factors must be taken into account, including the light path of the microscope, the usage of a condenser, the optical technique, and the components employed.

A beam of electrons is used in an electron microscope to produce images of the specimen. These bulky, expensive devices can magnify objects at far higher magnifications and with higher resolving powers than a light microscope.

Light microscopy is a key tool in modern cell biology. A large range of fluorescent probes are available for labeling proteins, organelles, and other structures, and bio cells can be photographed for lengthy periods of time to follow their dynamics. The resolution of light microscopy is well matched to the sizes of sub cellular structures. Light

microscopy is the best method for studying biology in bio cells because of these features(Kurt Thorn:2017).

When analyzing the relationship between microscopy and art, common driving forces can be defined. These include creativity and discovery, a new way of seeing the world, and a desire to transmit that vision to others — perhaps in a quest for immortality. Similarly, the cyclic nature of the scientific method — observation, followed by hypothesis, experimentation, and then again by observation — can equally be applied to art, particularly as the artist explores different ways in which to express innate creativity. The rigor with which this method is applied depends on the individual and not on the discipline(Lelio Orci and Michael S.:2002)



Fig.(1) Studying samples under the microscope and sketching ideas(<https://www.rosemarieoleary.com>)

2-Various sources of inspiration in fashion design:

There are no restrictions on what subjects can be used as sources of inspiration, and any event in art or design can move creators. We draw inspiration from all subjects that have a strong visual and tactile component. Examples utilized by artists and designers include museums, art exhibitions, international events, historical artifacts from the past, theatre, music, and dance (Naeimeh Anzabi:2016).

fashion design, which is closely related, changes quickly and necessitates constant information gathering from a variety of sources before developing any new sets. Because of its aesthetic and practical elements, clothing design has elements in common with other design qualities. Due to the interaction between design elements and principles, material properties, and adaptation and modification of design inspiration, the process of designing clothing, which is based on fashion creative trends, is more complicated and problematic than the process of designing products (Mete: 2006).

The phrase "sources of inspiration" refers to "all conscious uses of previous designs and other objects and images in a design process which helps the designers to use the knowledge of similar conditions and problems in their work" (Eckert et al.: 2000). Based on the distance from the subject of the design and the difference between the sources of inspiration, inter-domain and within-domain sources are split into two categories. (Goldschmidt:2001).Between-domain resources are instances that exist in a separate and unrelated domain than the primary design subject, whereas within-domain sources refer to situations that are connected to and similar to the original design subject (Chen, Peng: 2015).

3- Nature as an inspiration source of fashion:

The ability to visualize, comprehend, and communicate the findings of scientific study requires the use of artistic skills. The effort did as scientists is little compared to the task of an artist. Scientists are forced to work within very strict parameters: experiments must shed light on the nature of the universe and be repeatable; hypotheses must logically explain observations; and, most importantly, scientists must come up with

new ways to test and, potentially, disprove these hypotheses through further experimentation. Fine artists are under much less restrictions. They are only constrained by their imagination and the complexities and allures of the media they have chosen as they produce work that appeals to their viewers. Fine artists must therefore start from scratch when creating complete worlds (Goodsell, D.S.:2021).

When creating a garment, designers can be influenced by everything tactile and visual. Fabrics, historical and ethnic costumes, artifacts and vintage



Fig.(2) Adult neural stem cells as a source of inspiration dyeing/painting the fabric before and after stitching her pattern(<https://www.cell.com>).

Nature is without a doubt the greatest source of inspiration for beauty and art. As a scientific study method, microscopy is essential in illuminating the beauty of nature, a development that has led some to consider it to be an art form (Spector and Goldman: 2006).

Designers are inspired by a wide variety of things. Successful designers have the ability to recognize different sources of inspiration and then translate those sources into appealing apparel(J. Diamond and E. Diamond:1994).

items, architecture, natural objects and phenomena, and prior products are the main categories of concept sources for clothing designers. All of these things are crucial to the process of designing clothing. Various branches of science and art have been gratefully inspired by nature

(Naeimeh Anzabi: 2016).

Art is inspired by nature, but art can also advance biological knowledge, which in turn can promote the appreciation and preservation of artistic creations.

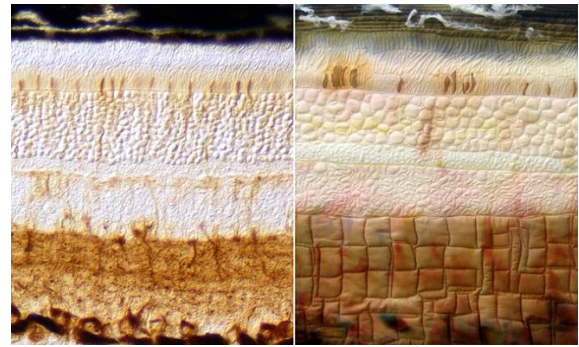


Fig.(3) The inner surface of the eye as a source of inspiration dyeing/painting the fabric before and after stitching her pattern(<https://www.cell.com>).

By understanding finer details of nature's designs, scientists are bridging the disparity and gap between synthetic and natural arts using scientific methods of investigations and analysis at nanomicroscale Furthermore, devices emerging from nature's mimicry are looking forward integrating smart sensors, new solar cells and advanced electronics to traditional way of life, defining new era of scientific progress.

(Ball P.:2001)



Fig.(4) Sample of texture inspirationy in fabrics and clothing. Left: Cloth inspired from the texture in moon.(Naeimeh Anzabi:2016)

A fashion line inspired by disease

an exhibition by Jacqueline Firkins, who works in the University of British Columbia's Department of Theatre and Film.

Ten ball dresses with patterns taken from microscopic images of cancer cells and cellular

systems make up the exhibit, which aims to spark discussion on the connection between disease, beauty, and body image


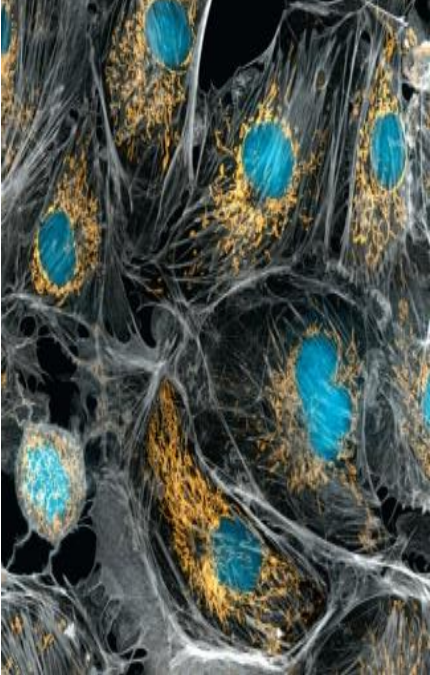
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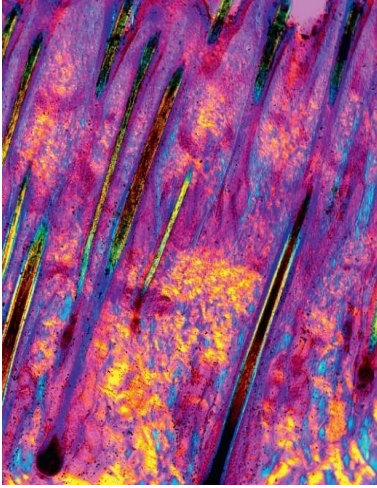

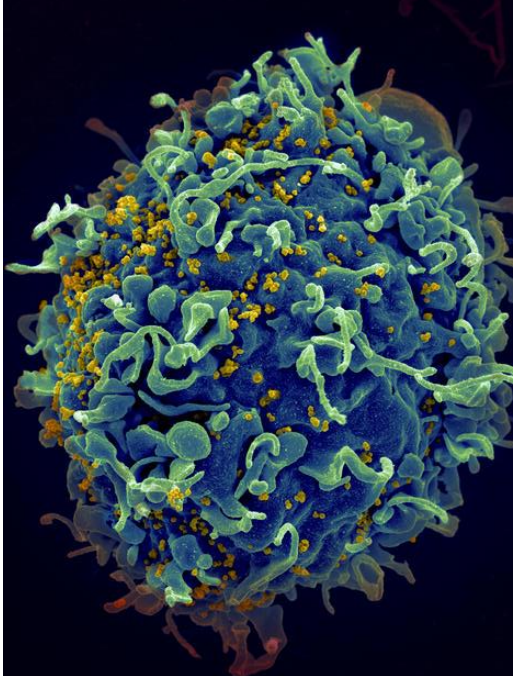


Fig.(5) dresses inspired by cancer cells and cellular systems (<https://www.dailymail.co.uk>)


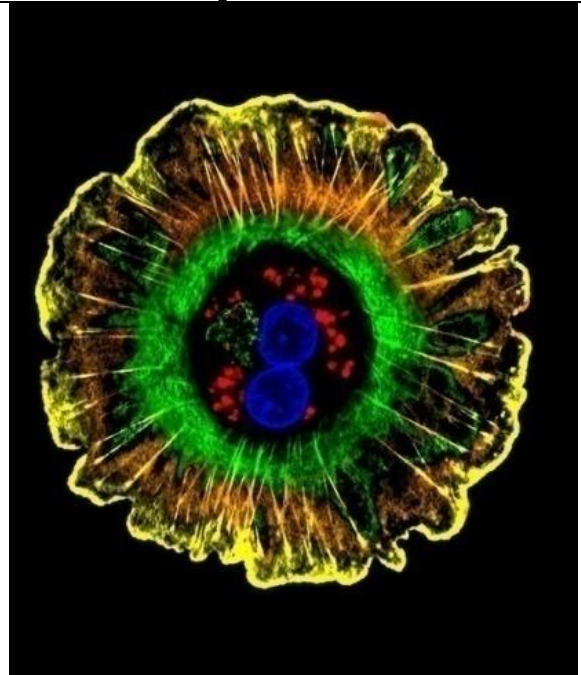
Experimental work:





The following is a presentation of (6) designs of soiree dress inspired of (6) figures to micro bio cell.

Design (1)	Inspiration source
	
<p>Fabric and color: Printed lung cells satin fabric and black satin(matched fabric)</p>	<p>Name: lung cells</p>
<p>Design description:</p> <ul style="list-style-type: none"> -An innovated empire soiree dress - The top (corsage) consists of an irregular cut above the bust line of printed fabric and a cut in the shape of a circle above the waist line from printed fabric. - The sleeve in the dress is asymmetrical, the right sleeve is shaped peasant made of printed fabric, while the left sleeve is made of black satin. - Below the waistline of the dress, there is a double cloche cut of black satin fabric, and the main part of the skirt is made of printed fabric. 	<p>Description: “Nuclei, which contain the cell’s genetic information, appear blue. Mitochondria, which generate energy for the cell, are yellow.”</p> <p>Source: Science Photo Library / Via Batsford (www.you-be-fit.com)</p>

Design (2)	Inspiration source
	
<p>Fabric and color: Printed Human skin cell satin fabric and white satin(matched fabric)</p>	<p>Name: Human skin cells</p>
<p>Design description</p> <ul style="list-style-type: none"> - An innovated bouffant soiree dress - The top (corsage) consists of cut above the chest line and at the bottom of it are tight cuts with a warp made of white satin basic fabric. - The sleeves of the dress is symmetrical, and it is a bell shape above the elbow line, made of white satin fabric, and the lower part is made of printed fabric. - Below the waistline of the dress consists of layers of different fabrics, the longest between the white fabric and the printed fabric. 	<p>Description: -“Nuclei, which contain the cell’s genetic information, appear blue. Mitochondria, which generate energy for the cell, are yellow,”</p> <p>Source: - Science Photo Library / Via Batsford (www.you-be-fit.com)</p>
Design (3)	Inspiration source
	
<p>Fabric and color -Printed HIV infecting a human cell satin fabric and black satin(matched fabric)</p>	<p>Name: -HIV infecting a human cell</p>

<p>Design description</p> <ul style="list-style-type: none"> - An innovated empire soiree dress - The top (corsage) with a V-neck and the corsage of the dress is in the form of very close-fitting pleats of silk chiffon fabric in violet color. - The sleeve of the dress is symmetrical, and there is a cornice above the sleeve tailor and below the elbow line. There is a three-layer cut, the middle layer of the printed fabric. - Below the waistline of the dress consists of two layers, the first layer is printed straight fabric and second layer is very close-fitting pleats of silk chiffon fabric in violet color. 	<p>Description</p> <p>This photo from the exhibit “Life: Magnified” shows the HIV virus (yellow) attacking a human T cell. This type of human cell is crucial for a well-functioning immune system to protect the body from bacteria and viruses.</p> <p>Source: (www.cbsnews.com)</p>
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Design (4)	Inspiration source
	
<p>Fabric and color: Printed Human liver cell satin fabric and yellow satin(matched fabric)</p>	<p>Name: Human liver cell (hepatocyte)</p>
<p>Design description:</p> <ul style="list-style-type: none"> - An innovated passant soiree dress - The top (corsage) consists of cut above the empire line there is cut from empire line to waist line made of printed fabric Below this cut is a lace fabric. - The dress's sleeves are very puffy and symmetrical, and the collar is decorated with lace fabric. - The lower part of the skirt is a double-cloche cut, and is inlaid with regular pieces of printed fabric fixed by the appliqué method. 	<p>Description:</p> <p>The majority of the liver is made up of hepatocyte. They are crucial for building proteins, producing bile needed for digestion of fats and processing chemicals in the body such as hormones and foreign substances like medicines and alcohol.</p> <p>Source: (www.cbsnews.com)</p>

Design (5)	Inspiration source
	
<p>Fabric and color: Printed lung cell satin fabric and black satin(matched fabric)</p>	<p>Name: human skin</p>
<p>Design description:</p> <ul style="list-style-type: none"> - An innovated one shoulder soiree dress - The top (corsage) Below the empire cut of the dress, there is a cut on the right side of the inspired printed fabric, and strings of blue-colored pearls attached to the left side seam. - The sleeves are separate and not attached to the dress. There is a sleeve of the basic fabric and the other sleeve of the printed fabric. - There is also a cape in the back of the dress, inlaid with pieces of cloth distributed randomly and irregularly, and fixed in the way of the pallet, and the lower part of the dress in the form of a trumpet with a wide canopy of printed fabric. 	<p>Description: The yellow things are a protein called keratin which makes the skin waterproof and strong, so that your organs inside don't get damaged. The black things are hair follicles.</p> <p>Source: Science Photo Library / Via Batsford (www.you-be-fit.com)</p>
Design (6)	Inspiration source
	
<p>Fabric and color: Printed Blood cells satin fabric and dark green satin(matched fabric)</p>	<p>Name: Blood cells</p>

<p>Design description:</p> <ul style="list-style-type: none"> - An innovated mermaid soiree dress - The top (corsage) from dark green With cuts of plissé on top of the chest of the dress and a wide cut of printed fabric. - The sleeves are peasant sleeve , Below the elbow line of the sleeve there are two pieces of cloth, one of which is printed and the other is made of dark green basic fabric. . There is a sleeve of the basic fabric and the other sleeve of the printed fabric. - There is also There is a sequin for the dress in the back of the dress from printed fabric. 	<p>Description:</p> <p>“Nearly half of our blood is composed of red blood cells, which deliver oxygen to our tissues. T cells (orange) are an essential part of the immune system. Platelets (green), the smallest blood cells, clump together into clots to stanch bleeding after an injury.</p> <p>Source:</p> <p>(www.cbsnews.com)</p>
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Result and Discussion:

The result is divided into two parts: Firstly, the designs were evaluated to determine the best design through studying the quality factor of each design as shown in the table (1) & (2) & (3) & (4) & (5). Secondly, evaluating the innovative designs by analysis the results of designed questionnaire.

Table (1) The extent to which the interior design lines are compatible with the shape of the source of inspiration.

Designs	Disagree(1)	neutral(2)	Agree(3)	strongly agree(4)	%	Rank
1	0	0	43.4	56.6	89.1	1
2	0	10.4	33.1	55.5	85.5	5
3	0	14.5	20.5	65	87.6	4
4	0	0	43.6	56.4	89.01	2
5	2.6	0	41	56.4	87.8	3
6	0	28.6	28.6	42.8	78.5	6
Average					86.25	

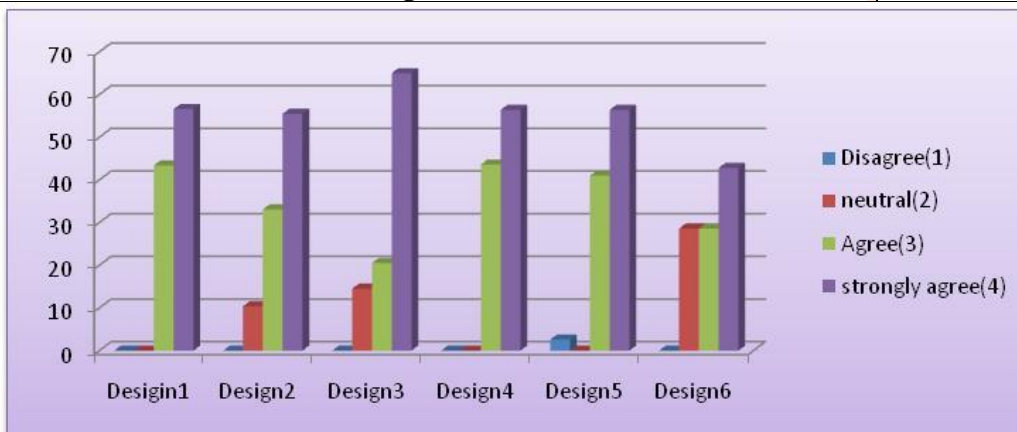


Fig.(6) The extent to which the interior design lines are compatible with the shape of the source of inspiration.

For the first criterion, is obvious from table no. (1) and figure (6) that the average was (86.25%) confirms the interior design lines are compatible with the shape of the source of inspiration the

highest quality factor was the design no.(1) by 89.1%) followed by no.(4) by (89.01%) while the less percentage quality factor come of design no.(6)by (78.5%).

Table (2) the extent of compatibility and harmony of the colors of the source of inspiration.

Designs	Disagree(1)	neutral(2)	Agree(3)	strongly agree (4)	%	Rank
1	0	1.2	43.4	55.4	88.5	3
2	0	10.4	33.1	55.5	85.5	5
3	0	14.5	21.5	64	87.4	4
4	0	0	43.6	56.4	89.1	2
5	0	0	42.4	57.6	89.4	1
6	0	1.2	43.4	55.4	88.5	3
Average					88.06	

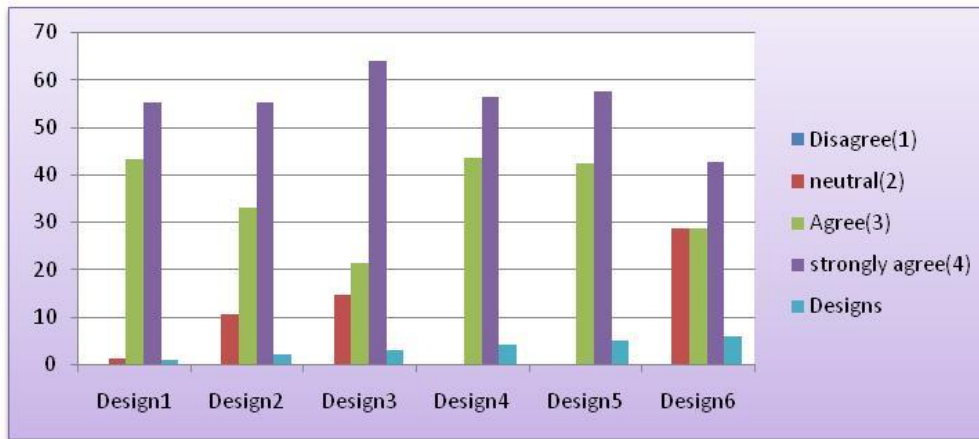


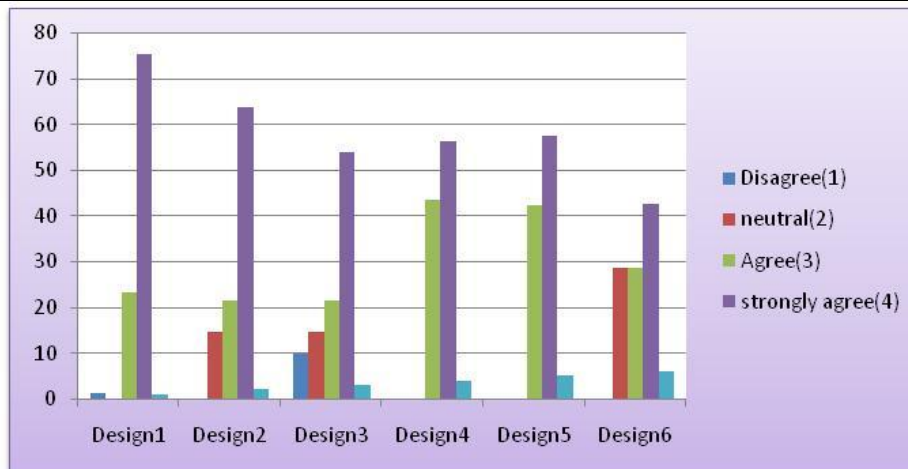
Fig.(7) the extent of compatibility and harmony of the colors of the source of inspiration.

For the second criterion, is obvious from table no. (2) and figure (7) that the average was (88.06%) confirms the compatibility and harmony of the colors of the source of inspiration. the highest

quality factor was the design no.(5) by 89.4%) followed by no.(4) by (89.1%) while the less percentage quality factor come of design no.(2)by (85.5%).

Table(3) the suitability of the design as an soiree dress for women.

Designs	Disagree(1)	neutral(2)	Agree(3)	strongly agree(4)	%	Rank
1	1.2	0	23.4	75.4	93.2	1
2	0	14.5	21.5	64	87.3	4
3	10	14.5	21.5	54	79.8	5
4	0	0	43.6	56.4	89.1	3
5	0	0	42.4	57.6	89.2	2
6	0	28.6	28.6	42.8	78.5	6
Average					86.1	



Fig(8) the suitability of the design as an soiree dress for women.

For the third criterion, is obvious from table no. (3) and figure (8) that the average was (86.1%) confirms the suitability of the design as an soiree dress for women. the highest quality factor was the

design no.(1) by 93.2%) followed by no.(5) by (89.2%) while the less percentage quality factor come of design no.(6)by (78.5%).

Table(4) to what extent has the source of inspiration achieved the element of innovation and renewal in the design of soiree wear?

Designs	Disagree(1)	neutral(2)	Agree(3)	strongly agree(4)	%	Rank
1	0	1.2	13.4	85.4	96	1
2	9.4	0	43.1	55.5	90.1	3
3	0	10.4	33.1	55.5	85.5	4
4	0	10.4	33.1	55.5	85.5	4
5	1.2	0	23.4	75.4	93.2	2
6	0	28.6	28.6	42.8	78.5	5
Average					88.1	

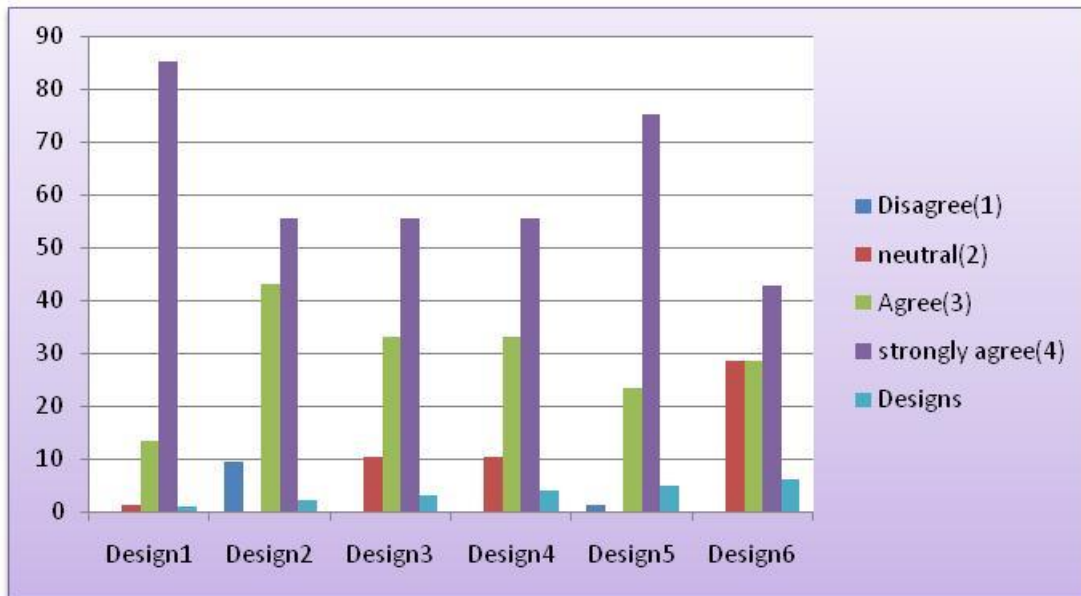


Fig.(9) to what extent are the lines of the source of inspiration compatible with the structural lines and silhouette of the design?

For the fifth criterion, is obvious from table no. (4) and figure (9) that the average was (87.2%) confirms the lines of the source of inspiration compatible with the structural lines and silhouette of the design. the highest quality factor was the

design no.(5) by 92.8%) followed by no.(2) by (90%) while the less percentage quality factor come of design no.(6)by (78.5%).

Quality Evaluation of the best innovative design according to questionnaire result:

Table(6) grading of designs according to questionnaire results.

Designs	Questionnaire					Average	grade
	Q1	Q2	Q3	Q4	Q5		
1	89.1	88.5	93.2	96	88.6	91	1
2	85.5	85.5	87.3	90.1	90	87.6	3
3	87.6	87.4	79.8	85.5	88	85.6	4
4	89.01	89.1	89.1	85.5	85.5	87.6	3
5	87.8	89.4	89.2	93.2	92.8	90.5	2
6	78.5	88.5	78.5	78.5	78.5	80.5	5

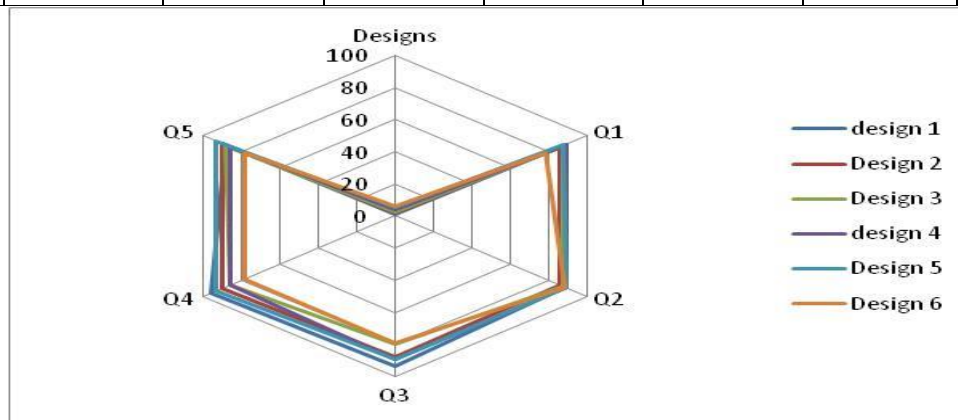


Fig (10) grading of designs according to questionnaire result

Conclusion:

Nature is a rich source of inspiration for the designer's thought and his drive for creativity, including aesthetics that help the designer to create many unique designs, and recent years have witnessed a tremendous development in the field of microscopes, which have the ability to show artistic paintings complete with elements through the

presence of any bio cell under the lenses of the microscope, which He had the greatest impact on creativity in various artistic fields through drawing inspiration from these unique images, which prompted the researcher to choose this source as a rich and different source for printing women's soiree fabrics and using images of 6 bio cells left over from the human body under a microscope to



be a source for 6 designs for women's soiree dresses.

The search following two methods the descriptive and analysis method & Experimental method:

- The descriptive and analysis method By describing and analyzing bio cells under the microscope lenses and learning about their names and composition.
- The Experimental method By creating six designs that were influenced by the artwork of bio cells under a microscope and preparing a questionnaire for 40 samples of experts in the field of fashion and clothing, it was possible to select the best designs that received the highest quality ratings for the five elements of the questionnaires' results.
- This study is only able to open up the field of art under the microscope to be the beginning of fashion inspiration, despite the author's best efforts to present a variety of innovative and original designs.

Research Results:

- Because of their structural systems, creative designs, and repeating harmonies, bio cells are examined under a microscope, and the vast variety in all of their forms enhances clothing's artistic merits.
- This study contributed to enriching the field of designing soiree dresses for women with innovative designs and boldness in using printed fabrics away from what is traditional in soiree dresses.

Research recommendations:

- The researcher recommends searching in the nature around us to extract elements that would be a new source of inspiration for any designer.
- The ongoing pursuit of what is novel and scientific in all current sciences and how to apply it to the applied arts, and particularly fashion design.
- Benefit from the great diversity in the micro art of bio cells in creating many designs.

References:

- 1- Antigoni Avramouli, Maria Gonidim, Maria Lambropoulou :2017” Microscopy as a form of art”, Technoetic Arts: A Journal of Speculative Research, Volume 15 Number 2.
- 2- Ball P.: 2001” Life’s lessons in design”. Nature;409(6818):413–6.
- 3- Chen, T. Y., & Peng, L. H. (2015) :”Nature-inspired Fashion Design through The Theory of Biomimicry”. Doctoral Program, Graduate School of Design, Department of Creative Design.
- 4- Eckert, C., Stacey, M., & Clarkson, J. (2000), Algorithms and Inspirations: “Creative Reuse of Design Experience”, Proceedings of the Greenwich 2000 Symposium: Digital Creativity, pp. 1-10.
- 5- Goldschmidt, G. (2001), Visual Analogy: “A Strategy for Design Reasoning and Learning, Design Knowing and Learning”: Cognition in Design Education, Elsevier, pp. 199-219.
- 6- J. Diamond and E. Diamond:1994” Fashion apparel and accessories”, Chapter 3, Delmar Publications Inc., USA,.
- 7- Kurt Thorn:2017” A quick guide to light microscopy in cell biology”, Molecular Biology of the Cell, The American Society for Cell Biology, Vol. 27, No. 2, 13 Oct.
- 8- Kuo, John (2014), Electron Microscopy: Methods and Protocols, New York: Springer.
- 9- Lelio Orci and Michael S. Pepper:2002,” Microscopy: an art?”, PERSPECTIVES, NATURE REVIEWS | MOLECULAR CELL BIOLOGY, VOLUME 3 | FEBRUARY, © 2002 Macmillan Magazines Ltd.
- 10- Mete, F. (2006), The creative role of sources of inspiration in clothing design, International Journal of Clothing Science and Technology, Vol. 18, No. 4, pp. 278-293.
- 11- NaeimehAnzabi(2016),” Nature Inspired Clothing Design Based on Biomimicry”, INTAN management journal, ISSN No: 0128-3324, 2016 (12): 241-251.
- 12- Spector, David L. and Goldman, Robert D. (2006), “Basic Methods in Microscopy Protocols and Concepts from Cells”A Laboratory Manual, New York: Cold Spring Harbor Laboratory Press.
- 13- <https://www.you-be-fit.com/2016/06/01/10-amazing-photos-of-the-human-body-under-a-microscope/>
- 14- <https://www.cell.com/pictureshow/art-under-the-microscope>
- 15- <https://www.rosemarieoleary.com/component/tags/tag/microscopy>
- 16- <https://www.dailymail.co.uk/femail/article-2585493/A-fashion-line-inspired-disease-Theatre-professor-designs-gowns-look-like-microscopic-photos-cancer-cells.html>