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LINE PLASTIC VALUES OF ALGAE AS A SOURCE OF ENRICHMENT FOR CERAMIC SURFACE

Walaa. Hamdy. El Shahat. Negm[1,2] , Dalia.Ali.Abdelmonem.Abdelaziz[3,4]

[1*]Assistant Professor Art Education, College of Education, King Faisal University, P.O BOX: AL-AHSA, 31982, Kingdom of Saudi Arabia, Email: wnegm@kfu.edu.sa
[2]Instructor of decorative designs, Faculty of Specific Education, Mansoura University, Email: dr.walaanegm@gmail.com
[3]Associate Professor, Art Education, College of Education, King Faisal University, P.O BOX: AL-AHSA, 31982, Kingdom of Saudi Arabia, Email:dabdelaziz@kfu.edu.sa
[4]Assistant Professor, Department of Industrial Design, the High Institute of Applied Art, , 6 October, Ministry of Higher Education, Egypt, P.O BOX: Cairo11728, Egypt, Email:daliaali1969@hotmail.com

***Corresponding Author:** Walaa. Hamdy. El Shahat. Negm
*Assistant Professor Art Education, College of Education, King Faisal University, P.O BOX: AL-AHSA, 31982, Kingdom of Saudi Arabia, Email: wnegm@kfu.edu.sa

Abstract:
The line is an important element of the design، Rather, it is considered a complete tool in itself in the hands of the creative designer Line is one of the oldest means of artistic expression that has developed with the development of ages, and its concepts have changed, and its functions have diversified and its forms have varied. Until today, it has become of high aesthetic, plastic, expressive, and constructive value in any artwork the font has the ability to authorship and composition, which gives many meanings and foundations for the design، Such as poise, stability, movement, and dynamism; Therefore, the current research seeks to take advantage of the linear plastic values of algae as a source for enriching the ceramic surface ، As algae are an integral part of nature، whose different forms vary in their systems and plastic structures to include various elements of points lines, textures, and colors, In endless rhythms and relationships, and therefore it is an important source of inspiration And it was previously shown previously presented, the two researchers consider that the study of the linear plastic values of algae and the linear aesthetics associated with it, is a fertile field that can contribute to the development of innovative design formulations that enrich the ceramic surface.

Keywords; Algae - Linear modulation values - Ceramic surface

Introduction:

The twentieth century witnessed a large number of modern scientific research and studies that directed the visions of the contemporary artist toward his concept of nature, he focused his attention on studying its laws, systems, and the various phenomena of its own growth, in order to discover its elements and systems. Which expands the creation of many forms of plastic and creative field we find that he does not stop at a certain point in the ideas and topics he deals with, but rather searches for what is new Art considers the reorganization of the elements of the natural environment through the artist's vision and experiences Recently, interest in nature, its preservation and benefit, has begun in all fields, whether industrial or artistic Some artists took inspiration from the elements of nature, whether plant, animal or other With the development of science, the artist and designer resorted to drawing inspiration from natural shapes under the microscope ،The aesthetic images of algae are one of the natural elements Which have many and varied forms in their systems and plastic structure to include various elements of points, lines textures, and colors, as well as having fine, varied, linear aesthetic values that are not governed by hardness There is still room for many technical studies on

it. Where it has not been adequately processed linear plastic values in algae depend on their implementation on the line; which is an important element of design and is a complete tool in itself in the hands of the creative designer The line is one of the most important elements in the design because of its main role in the construction of the artwork Where hardly any work of art is devoid of the element of line Although in varying degrees The line surrounds a specific area or shape, so it becomes a selection tool It also determines the movement, direction and the extension of the space, as the nature of the line is to transmit and follow the movement directly, and there are several forms of lines, including the curved, the reflex, the refractor, the vertical straight or the horizontal straight. Linear is also considered one of the oldest means of artistic expression that has developed with the development of ages, and its concepts have changed, its functions have diversified and its forms have varied Until today, it has become an expressive and constructive artistic value in any artwork The line has the ability to authorship and composition that gives many meanings and foundations for design such as balance, stability, movement, frequency, and dynamism; linear also has a magical function in building something that did not exist before; It is made up of objects and voids, Therefore, the current research seeks to take advantage of the linear plastic values of algae as a source for enriching the ceramic surface Which prompted researchers to a holistic view of elements, vocabulary, and manifestations of formation in an anthology of algae forms Some of them appear in the forms of symmetry in the body, and some of them are clear in which the differences or discrepancies are clear, and some of them are represented in the form of branching or radiation around its center An element that is structurally based on curved lines is different from an element that is structurally based on straight or wavy lines Therefore, the lines of all kinds contain many aesthetic values in terms of composition and shape. The lines in the algae vary and their shapes are varied, giving them aesthetic characteristics due to their flexibility, voluntariness, and ability to extend, return, rotate, interlock, overlap, install, coordinate, extend and rotate. This helped to give it different forms, and in light of what was previously presented, the two researchers believe that the study of the linear plastic values of algae and the linear aesthetics associated with it, is a fertile field that can contribute to the development of innovative linear formulations that enrich the ceramic surface.

Study problem:
From the above, the research problem was identified in the following two main questions:
- Is it possible to benefit from the linear plastic values of algae under the microscope as a source for enriching the ceramic surface?

The following two questions arise from it
- How can a hypothetical technical study be applied through graphic programs based on the linear plastic systems of algae under the microscope as a source for enriching the ceramic surface?
- Can we come out of this study with new linear plastic systems that add to art in general and to decorative design and as a source for enriching the ceramic surface, in particular, and considered one of the sources of artistic vision?

Study importance:
-The extent to which the linear and aesthetic values of algae are utilized and utilized to enrich the ceramic surface with contemporary art designs and visions.
- Expanding the circle of new ideas for the artist to reach artistic solutions that add new and innovative aesthetics to the ceramic surface.

Study objective: - -
Identifying the linear plastic values of algae as a source of inspiration and contemporary artistic vision.
- Emphasis on the plastic and aesthetic values of the line element.
- Using graphic computer programs in an attempt to provide models for decorative designs inspired by the linear plastic values of algae and suitable for enriching the ceramic surface through a contemporary design vision.

Study hypotheses:

The search assumes that:

- Studying the linear plastic values of algae virtually through computer graphics programs may contribute to enriching the ceramic surface.
- The application of an artistic study on the types of algae and their linear plastic components and their rhythmic systems and artistic values.
- Diversity in the sources of artistic vision in nature contributes to the enrichment of the ceramic surface.

Study Methodology:

The research follows the analytical and experimental method:

First, the theoretical aspect

- Analysis of the linear and aesthetic values of algae.

Second: the application framework:

- An analysis to highlight the linear values, the aesthetic values they contain, and the different color and linear systems they contain.
- Producing innovative designs inspired by the linear values of algae that enrich the ceramic surface

Study limits:

The research is limited to studying the aesthetics of linear values in algae**.**

- Conducting proposed hypothetical experiments using (Adobe Illustrator) and (Photoshop) programs inspired by the linear values of algae.

Study terms:

Algae:

Algae are a group of Trinity and non-flowering plants for the Trinity, that is, its body consists of a triad, that is, it is not distinguished by true roots, stems, and leaves and Contains analog pigments (chlorophyll) and other pigments they live in oceans, seas, lakes, ponds, and moist soil. Some algae are microscopic and consist of only one cell and some Contain Algae are known as primitive, autotrophic plants, simple in structure, lacking in vascular tissue, and containing chlorophyll pigment. In many cells. It consists of about 22,000 species grouped into five basic sections (blue-green algae, green algae, red algae, brown algae, and golden algae) (14). They have simple reproductive structures, and they are Trinity plants that lack the presence of leaves, stems, and true roots.

Linear plastic values depend on the line as an important element in the design:

Line:

It is a series of contiguous points that define a dimension and a direction, and it is filled with energy and full kinetic forces running in that direction It gathers at both ends of the line, whether straight, curved, or wavy(8). The line is defined geometrically as the effect resulting from moving a point in a path some may see that a sequence is a group of contiguous points that extends in length and has no width or thickness and depth, but it can be said that it has a place and direction and it defines the edge of the surface It also determines where two planes or surfaces meet or where they intersect Line is an important formative element for its main role in building the artwork, as hardly any design work is devoid of the element of Linear, even if it is to varying degrees. The line is a moving point in the space that extends left and right or up or down, sometimes straight and creates a straight line, and at other times it curves and creates an arc rhythm.

The theoretical framework for research:

First: Algae and their types:

Algae are found and spread in various environments around the world, they are found in the aquatic environment, on land or airborne, or aerial algae such as those that grow on the surface of the soil or behind trees, or on the leaves of higher plants. (3)

General classification of algae:

Algae are divided into more than one main phylum:

Phylum of blue-green algae Cyanophyta:

This phylum includes 1500 species and its members spread in various aquatic and terrestrial environments and includes multiple vegetative forms, some of which are unicellular or multicellular in the form of colonies, aggregates, or filaments. (13)

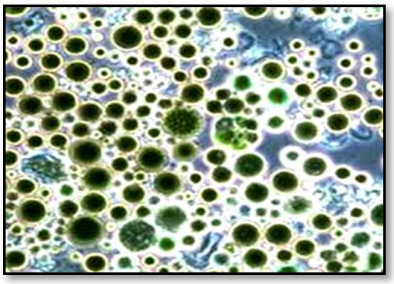

Figure (1) Cell clusters of the alga Dermocarpa

Phylum of vegetable algae Chlorophyta:

It includes 6500 species, and the diversity is noted in the vegetative forms of green algae, which are represented in the following forms.

Figure (2) the alga ulothrix

Phylum of the golden algae Chrysophyta:

This phylum includes a large number of species and up to 6000 species, and it includes genera unicellular or in the form of filamentous or tubular colonies

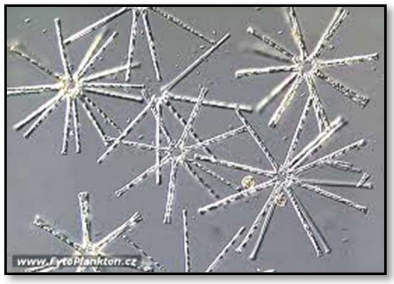

Figure (3) the alga Asterionella

Phylum of Algae Pyrrophyta:

Classified into two classes, each class includes a number of ranks

Figure (4) the alga p. Cinctum

Phylum Brown algae (seaweed) Phaeophyta:

This phylum includes 1500 species

Figure (5) the alga ectocarpu

Phylum of the algae Rhodophyta:

This phylum includes 5250 species, most genera are found in seas and oceans in the polar to tropical regions, and some of them have a specific geographical location.

Figure (6) the algae nemalion

Second: simulating nature:

Nature, in its various manifestations, is the first source of inspiration for artists, regardless of their different artistic styles and trends Intellectual and although nature is one in its visible appearance, the artists' vision of it differs from that of an artist to the artist begins to study nature through various overlapping shapes and lines. The designer can understand, perceive, experiment, and deal with different variables of elements, shapes, bodies, and lines. Algae is one of these elements(5) .another, as each artist has his own vision in dealing with the elements of nature, from different and varied systems, in an endless variety. The visible and invisible nature, with its infinite shapes, forms, and lines is the greatest source of the design process Nature and the systems and laws that it reveals are often considered the first source for designers to extract their plastic elements and vocabulary The artist begins to study nature through various overlapping shapes and lines. The designer can understand, perceive, experiment, and deal with different variables of elements, shapes, bodies, and lines Algae is one of these elements. (5) Nature has given the artist everything that is new and has had an impact on the imagination of many artists and designers so that it opens up new horizons for them towards innovation in the field of ceramic design and an always strives to try to discover the nature that he deals with visually in order to employ its components in building and forming works with his own vision. (4)

Third: Linear plastic values of algae:

Algae contain many wonderful, linear plastic values, which have their own systems that are governed by the creation of the Almighty Creator, with extreme precision that calls for contemplation and admiration one of the most important formulations and structural design systems on which these algae depend are lines of all kinds and types These wonderful formations are subject to engineering construction, and the line in algae is characterized by the plastic capabilities that provide the opportunity for the artist to be creative, and it is considered one of the most important elements capable of achieving movement in the artwork. (13) Nature is full of many types of linear vocabulary, whether its shape is visible or under microscopic vision, as in algae if we contemplate the idea of the line in algae, we find that it is a phenomenon rich in its value and infinite variety. The truth is that

these lines are boundaries of spaces and are not lined in themselves, but rather they are virtual lines. The lines, with their connotations, can generate many feelings within us, such as a sense of stability through the vertical and horizontal lines, movement through the diagonal line that moves in the direction of its inclination, or through the median lines that tend to move in the direction of our pressure. (9) Line has an aesthetic value in its extension, contrast, refraction, flexibility, deflection, and tenderness.

The most important types of lines and their visual-perceptive connotations:
The line has its plastic value and its connotations by which the content and the final appearance of any design are formed. Therefore, it is useful to present the types of font and their perceptual connotations. The prevailing fonts can be divided into two basic types:
1- Simple lines.
2- Composite lines.

Simple lines are divided into two types:
Straight Lines:
A straight line is the shortest dimension between two points or the path of a point in a fixed direction. Straight lines are divided into the horizontal line the vertical line - the oblique line. As in Figure. (8)

Non-straight lines:
Non-straight lines are those that do not take a fixed direction in their path, and these lines play a constructive role in the artwork along with other straight lines, and each of its natures is different from the other but complements each other, and for this reason, designers and artists used them in their artwork, The non-straight lines are divided into the curved line - the arc line - the smooth line. As in Figures (8), (9), (10)

Compound lines:
Compound lines depend on the repetition of one or more types of lines in certain ways. Compound lines may derive from straight or non-straight lines and sometimes combine straight and non-straight lines at the same time. (11) Parallel line - perpendicular line.
Lines based on a **non-straight line**: wavy - spiral - zigzag - spiral. Figure No (12).

Compound lines whose base may be straight or non-straight: braided converging-free-dotted-interlaced-radial No (7).

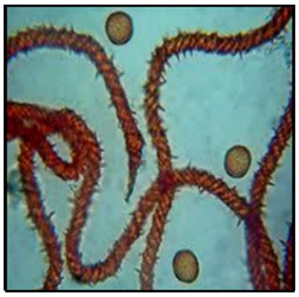

Figure (8) a colony of algae containing parallel stripes, containing within it the touches of scattered parallel stripes.

Figure (9) A model of algae visible with the naked eye, containing consecutive smooth curved lines to achieve the linear rhythm.

Figure (10) a colony of algae contains curved lines as if they are rough ropes tightly twisted and realize the value of the line aesthetically in the emerging spaces and the perceived emptiness of its dialogue.

Figure (11) A colony of algae containing curved parallel, stripes, containing within it the palps of scattered parallel stripes.

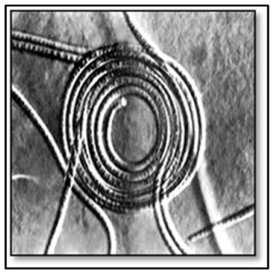

Figure (12) a colony of algae containing straight, non-square, and parallel striped lines that cause the effect of transparency. The importance of the line stems here in building the design structure.

Figure (13) A model of unicellular algae containing spiral lines, creating optical illusions and achieving a sense of movement.

Practical framework:

The practical study of this research focuses on creating digital decorative designs that are suitable for treating various ceramic surfaces, and are decorated with linear formations inspired by the linear plastic values of algae. loneliness; To test that the linear plastic values of algae are a fertile field to support creative thought and future aspirations for design; In terms of generating ideas, implementation, and formal construction of the design, it also allows translating the idea into an artistic body, through implementation using graphic programs, specifically using Adobe Illustrator and Photoshop, inspired by the linear values of algae.

Structural relationships within the artistic surfaces used in making the designs

Experimentation relationship It is one of the most important structural relationships in design that was used in this research. Experimentation is a means of performance

The first for any creative designer; Through it, he formulates his ideas and builds his works. And it has the ability to process during application; This can only be achieved by adopting new artistic visions. Modern art trends linked experimentation

And the type of creativity.-

. Installation or assembly relationship-

. Relationships of contact and juxtaposition between parts-

. The relationship of zoom and zoom-
. Recurrence relationship-

First proposed design:
The structural basis of this design was based on the radial, horizontal and vertical design construction together, and this design was made of enlarging the element as an element that has sovereignty in the design and the relationship between the shapes, the relationships of gradation, and diversity between large and small, and this design is inspired by the moss Nemalion)) with radial linear plastic values with The single-center, which is subject to precise engineering construction, and the proposal was executed on a ceramic surface using multiple techniques, including laurel and embossing, and the use of drawing over painting.

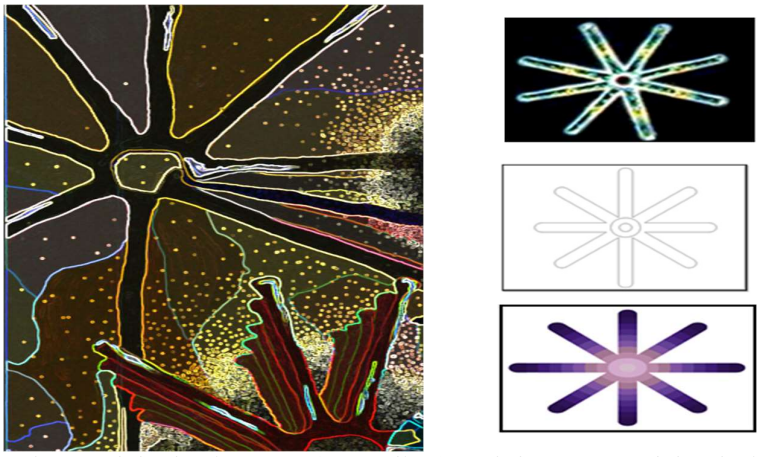

Figure No. (14) Shows the shape of the basic moss (Nemalion) and the stages of the design process and the final design inspired by it.

Second proposed design:
The structural basis of this design relied on the radiative design construction, and this design was made through a repetition of the same linear plastic unit, and the relationship between the shapes, the relationships of total and partial overlap, and irregular repetition. Precise engineering and the proposal were implemented on a ceramic surface using various techniques, including laurel and embossing, and the use of drawing over painting.

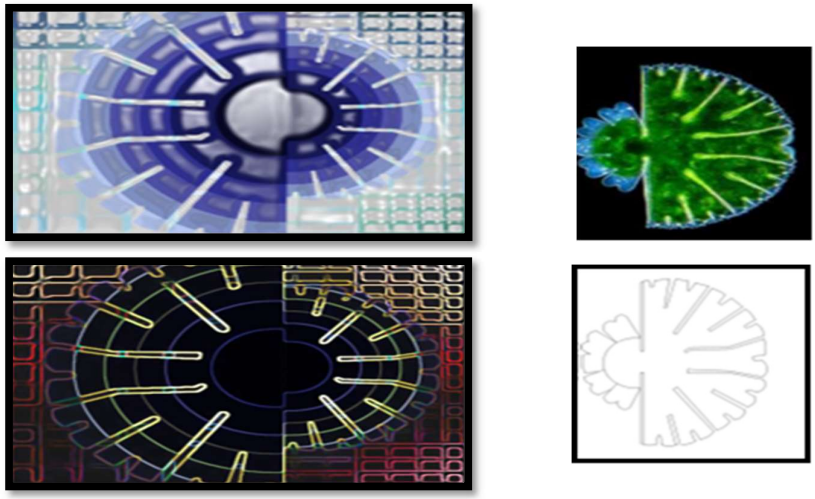

Figure No. (15) Shows the basic moss (Chrysophyta) and the stages of the design process and the final design inspired by it.

Third proposed design:

The structural basis of this design relied on the radial, horizontal and vertical design construction together, and this design was made from the relationships of total and partial overlap, irregular repetition in the design and the relationship between shapes, relationships of gradation and, diversity between large and small, and this design was inspired by moss (Volvox) with linear plastic values Multi-centered radiation, which is subject to a precise engineering construction, and the proposal was implemented on a ceramic surface using various techniques, including the recessed and prominent, and the use of drawing over paint .

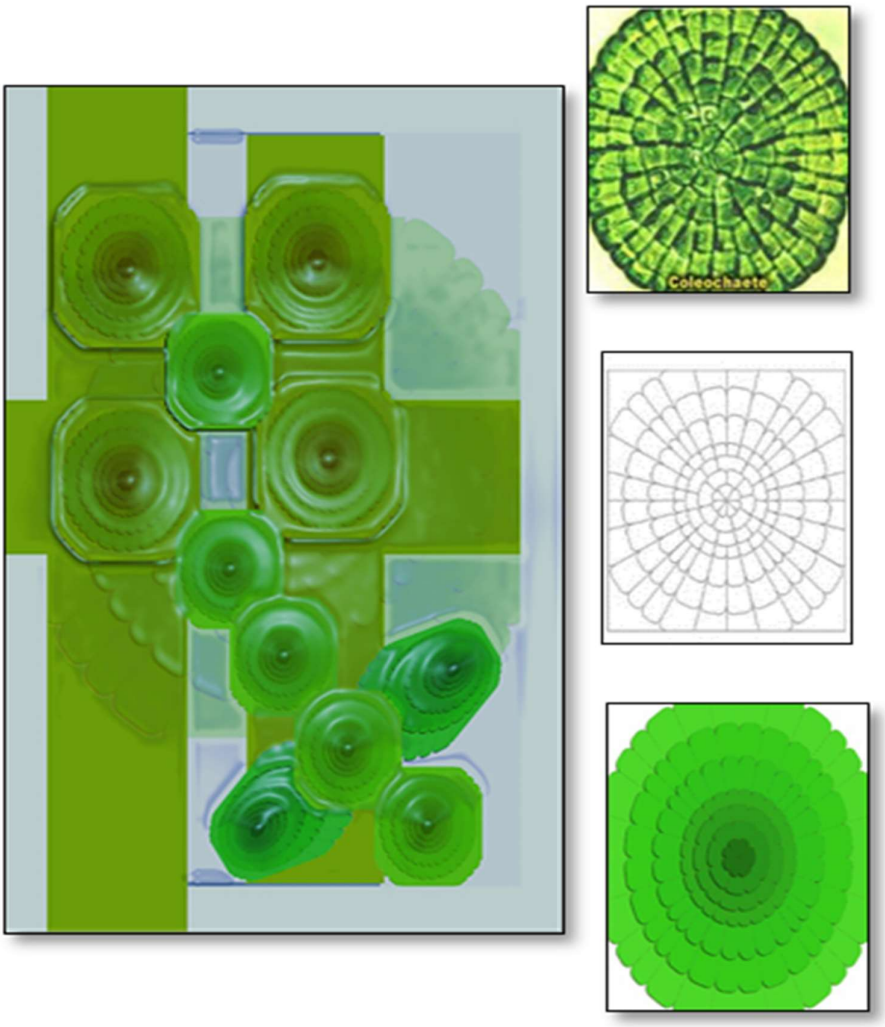

Figure No. (16) Shows the shape of the basic moss (Volvox) and the stages of the design process and the final design inspired by it.

Fourth proposed design:

The structural basis of this design relied on the radiative design construction, and this design was made through a repetition of the same linear plastic unit, and the relationship between the shapes, the relationships of total and partial overlap, and irregular repetition. Precise geometry. The proposal was implemented on a ceramic surface using various techniques, including laurel and embossing, and the use of drawing over paint.

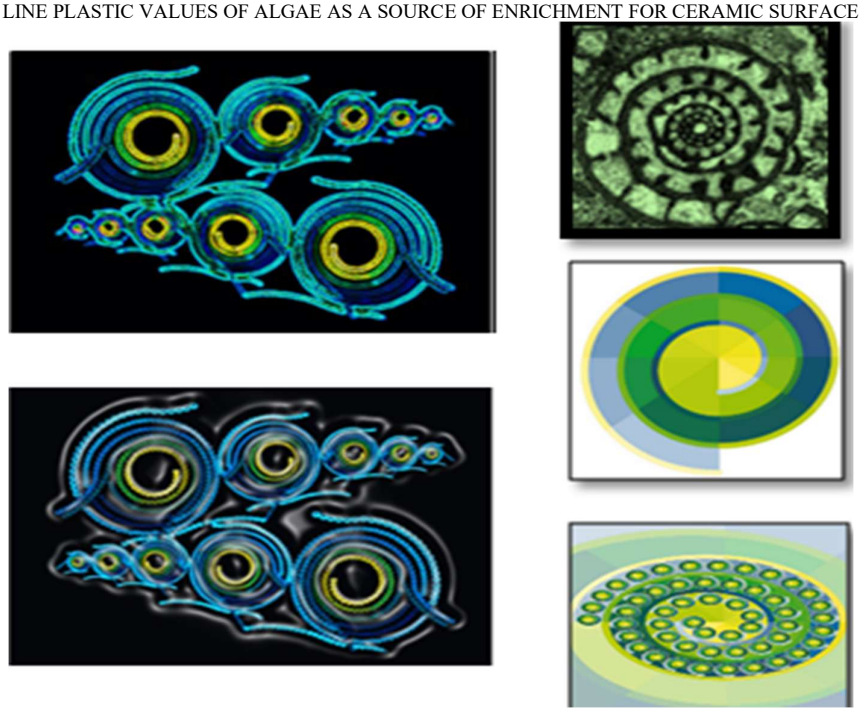

Figure No. (17) Shows the shape of the basic moss (Bidulphia) and the stages of the design process and the final design inspired by it.

Fifth design proposal:

The structural basis of this design was based on the multi-centered helical design, and this design was made from the repetition of the same helical linear structural unit and the relationship between the shapes, regular repetition relationships. The proposal was implemented on a ceramic surface using various techniques, including laurel and embossing, and the use of drawing over painting.

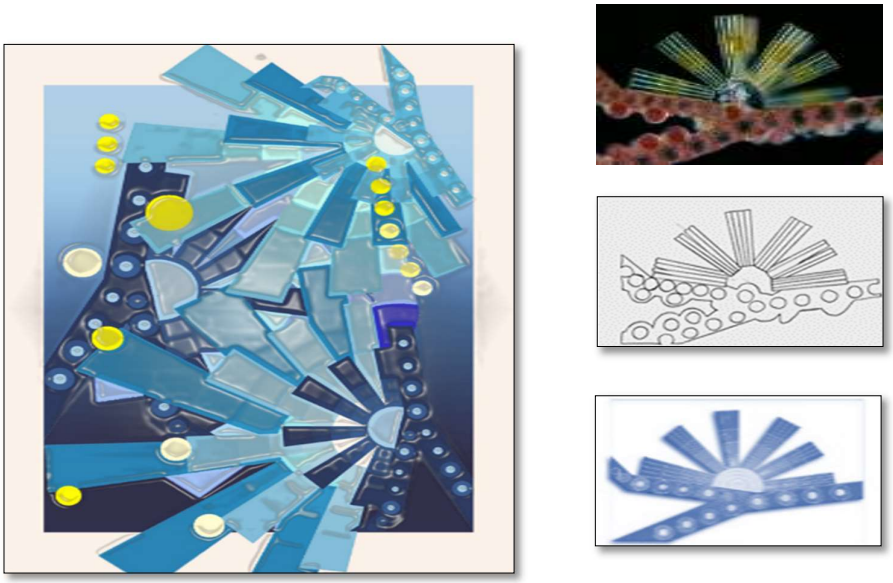

Figure No. (18) Shows the shape of the basic algae (Fossil diatoms) and the stages of the design process and the final design inspired by it.

Results:

- Studying the linear plastic values of algae helped produce a set of designs that affected the ceramic surface and carried in it new plastic values and dimensions.

- The linear plastic values of algae were recognized as a source of inspiration and contemporary artistic vision.
- The use of some computer graphics programs helped to provide models for virtual designs that enrich the ceramic surface inspired by the linear plastic values of algae through a contemporary design vision.
- The linear plastic values of algae are an important source of modern vision in contemporary art It contains linear and aesthetic components and diversity in its natural construction.
- Linear plastic values in algae store a kinetic and dynamic force that affects the viewer's perception of the artwork.
- The study of linear rhythmic systems in algae helps to find new plastic forms for design.

Recommendations:

- Conducting more studies based on the linear plastic values of algae and benefiting from them in enriching the design aspect in the plastic arts, especially in ceramic design.

-Continuing to elicit the linear values of algae in contemporary design

-The necessity of developing the skills of design practitioners in the field of design programs through a computer or graphic programs due to their accuracy and ease of use.

- Conducting more experiments on algae under the microscope as a source of modern artistic vision; opens new horizons for designers of decorative designs and shaping the ceramic surface.

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