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Utilization of organic soil in canvas

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Abstract: The utilization of organic soil in canvas offers a promising avenue for sustainable artistic expression. This study aimed to determine the chemical properties of organic soil in canvas in terms of ph level and moisture content. The study was experimental and developmental research methods for studying the utilization of organic soil in canvas that focuses on the specific research objectives, the nature of the study, and available resources. The study uses the Complete Randomized Design (CRD) in which the participant selection was randomized to avoid bias result this were the local artists, art students, or individuals interested in canvas painting. There were 50 participants/respondents were agreed to join in the evaluation process.The findings reveal that organic soil paints exhibit favorable chemical characteristics, including the ph level and moisture content.

Keywords: Utilization, Organic Soil, Canvas, Chemical properties,

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INTRODUCTION

Soil is a word whose meaning varies according to context. The patriotic understanding of soil (as in the “soil of France”) and the agricultural understanding of soil have very little in common. Even in the environmental and geological sciences, there are often vast differences between the soil of the geologist, the archaeologist, the geotechnical engineer, and the soil scientist, or pedologist. In the history of soil science, numerous definitions have been formulated, but all tend to have one or more of the following criteria in common: the presence of, or ability to sustain, life; the state and position of the soil as unconsolidated porous matter occupying the topmost layer of the earth, from the surface to the parent rock below; and the ability to demonstrate a record of physical and chemical change (genesis) due to myriad environmental factors over time (Certini and Ugolini, 2013).

To encourage more holistic approaches to soil protection, our soil science community must open the doors to develop new perspectives by investigating and initiating transdisciplinary projects. Art, history, anthropology, sociology, psychology, economics, and religious studies represent just a few fields for expanding the scope of soil protection and raising soil awareness. In this contribution we aim to show how artists help reveal the interconnectivity of soil, life, and culture, and in so doing offer a different lens for appreciating the soil.

The range of art forms and genres dealing with soil is wide and diverse, spanning many centuries and artistic traditions, from prehistoric painting and ceramics to early Renaissance works in Western paintings and sculpture, to recent developments in film, architecture, and contemporary art (Landa and Feller, 2010; Toland and Wessolek, 2010, 2014). With the emergence of environmental awareness and activism during the second part of 20th century, especially since the Earth Summit in Rio de Janeiro in 1992, individual artists all around the world began to include soil (and not simply the landscape in general) as a subject of artistic inquiry. Environmental art, ecological art, and Land Art are some of the more well-known

genres that took up issues of land use, soil ecology, and agricultural change in the latter half of the 20th Century.

Following Wessolek's (2002) personal vision "to encourage a new art style, named Soil Art", we have assembled a set of case studies that we feel expose the possibilities of this vision. For our purposes of case selection, we will define soil art as "artistic work about, in, or with soil or soil protection issues, that is produced by artists in a multitude of genres and media, to be understood, among other things, as artwork that may contribute to wider environmental and soil protection and awareness-raising discourses" (adapted from Toland and Wessolek, 2010).

This definition does not presume the recognition of a new art genre but rather narrows our field of inquiry and opens the door for future discussion. Since the scope of artistic activity with and about soil is so large and diverse, it will be impossible to give examples of all artistic forms and genres in a single article. Rather than attempt a comprehensive overview, we will offer selected examples, from Renaissance paintings to contemporary installation works, to feature films, which reflect our observations as soil scientists with focused interests in art.

In fine art and drafting subjects areas, many tools and materials needed that are very costly as well as expensive and some students cannot afford to buy. And that's why as a researcher, something has to be contributed that can be useful not only for the students but to anybody who wants to used or utilize organic soil in canvas.

Statement of the problem

This study aimed to utilize organic soil in canvas. Specifically, it sought to determine the chemical properties of organic soil in canvas in terms of ph and moisture content.

LITERATURE REVIEW

Developing and utilizing organic soil

Developing and utilizing organic soil in canvas painting involves integrating knowledge from art, soil science, chemistry, and environmental science. The key components and their relationship were being outlined.

The artistic vision and expression which entails the creative intent drive the exploration of using organic soil in canvas painting. Artistic expression and conceptual narratives guide the selection of organic soil as a medium, reflecting themes related to nature, sustainability, and environmental awareness. Then understanding the Soil composition and characteristics, which drives the study in gathering and utilizing the materials.

Understanding the composition and properties of organic soil, including mineral content, organic matter, texture, and color variations. Analysis of soil chemistry, pH levels, and organic compounds to assess their suitability for pigment extraction and painting. Pigment extraction and preparation with the experimentation of various methods for extracting pigments from organic soil, such as grinding, washing, and sieving then the formulation of paint mixtures using extracted pigments, binders, and additives to achieve desired color, texture, and stability.

After that, the painting techniques and applications which explores painting techniques and applications suitable for organic soil paints on canvas, including brushwork, layering, and mixing with other media and the adaptation of traditional and innovative painting methods to maximize the aesthetic potential of organic soil pigments.

The aesthetic and visual effects evaluation which achieved through the use of organic soil in canvas painting, such as earthy tones or visual appearance, texture, color consistency, value scale, and ease to use. It analyze how organic soil pigments interact with light, surface

texture, and other painting materials to create unique visual outcomes. Then the assessment of the study of the durability and archival properties of organic soil paints over time, considering factors such as lightfastness, color stability, and resistance to environmental degradation which was only limited in the duration. This also provides an insight into the development of preservation strategies and conservation techniques to ensure the longevity and integrity of organic soil paintings.

One of the main objectives of teaching soil science is to convey the concept of a three-dimensional, organized natural body – the pedosphere. Soil is organized into different layers named "horizons", and the whole of the horizons is the "soil profile", with a thickness from some centimeters to more than 10 m. It means that soil is not only "earth" but a "natural body" dependent upon different factors, such as climate, topography, geology, biology (including human activities), and time. Hence, earth as a material (and Earth as a planet) must not be equated with soil as an organized natural body. This vision of the soil is attributed to the Russian scientist VasilliiDokuchaev, who suggested in his 1883 thesis The Russian Chernozem that the soil be considered the fourth natural kingdom of nature, equivalent to the mineral, animal, and vegetable kingdoms (Toland and Wessolek. 2015).

Every soil scientist knows how students are astonished and fascinated when they discover the soil profile (Harteminketal., 2014). A new world appears for them with this organization of multi-colored horizons – a world filled with living creatures. For some, the first time seeing a soil profile can be an emotional experience. As Hartemink (2014) noted at the 20th World Congress of Soil Science, "The soil profile speaks to us. . . . The soil profile tells us stories". Nowadays, in modern soil textbooks, soil profiles are shown and described with photographs. But the early scientific depictions of soil in paintings dated from the beginning of the 20th century, either as splendid illustrations in textbooks on soil or prepared for educational exhibitions in lecture halls, generally as canvases representing different types of soil.

The two oil canvases (60 × 100 cm) shown in Fig. 2 represent soil profiles. These canvases were published as illustrations in the soil science textbook of Demolon (1952,p. 86) and were anonymously displayed in the 1940s for a soil science course.

In an art exhibition on "the Earth" (Della Monica, 2015), C. Feller presented these paintings, without any technical explanation. The visitors generally found these canvases splendid, and asked if they were painted by an artist. Soil scientists who have written about historical farming practices, land use, and soil geomorphologic processes have often referenced paintings such as those discussed in this chapter, as well as others by Jacob and Salomon van Ruysdael, Paul Gauguin, Hieronymus Bosch, Peter Brueghel the Elder, and Ambrogio Lorenzetti, in their communications (Feller et al., 2015). They use artistic examples to make the story of the soil profile come alive. Other soil scientists – for example Gerd Wessolek and Alexandra Toland (Technische Universität Berlin), Ken vanRees (University of Saskatchewan), and Jay Stratton Noller (Oregon State University), and Folkert Van Oort and Béné-dicte and Louis-Marie Bresson (INRA, France) – go beyond showing famous case studies of paintings to include artistictechniques and artistic collaborations in their teaching practices. A transdisciplinary confluence of soil science and art is achieved by including soil science students in artistic activities, and inviting artists to participate in soil science research and teaching endeavors.

Paintings by soil scientists are a way of presenting soil scientific concepts in a visual way. Figure 4 explores formal aesthetic features (color, texture, structure, composition of horizons) to describe soil properties. Such aesthetic features are often used in field descriptions for soil mapping but are not referred to as such. Capturing the profile in a painting is an exercise in aesthetic observation and documentation that allows the field

scientist or student to capture subtle details not possible in tabular, written form (Alberghina et al, 2019).

Painting techniques are also often used in soil awareness raising activities, such as the "Painting with the colours o \fthe earth" program with Irena Racek in Austria (Szlezak, 2019), the soil painting program at the Museu de Ciências da Terra Alexis Dorofeef (Earth Science Museum) in Brazil (Muggler, 2017), or the soil painting exercises with Marcela Moraga at the Global Soil Week in 2015. Beginning with Wessolek's international "art and soil" calendar in 2004, the calendar has become a popular format for displaying soils from an aesthetic perspective. Since that time, several soil science societies have developed similar calendars as an effort to raise soil awareness. These examples aim to encourage a direct physical, personal, and aesthetic experience with materials otherwise rarely seen.

Sometimes art opens the door to people wanting to learn about science," says Laura Guertin, a geology professor at Pennsylvania State—Brandywine. Guertin too has brought art into science, both for her classrooms and her communities, by crocheting temperature records and quilting climate change stories. "Using different perspectives to introduce a topic, like soil, can help people understand and connect with it a little more. Using Dirt to Make Stunning Paints (Dzombak, 2021).

Painting with soil has some major advantages compared to normal painting with oil or acrylic paint: (1) It is completely natural and sustainable. There are no plastic or dangerous chemicals involved. (2) The painting gets a nice texture due to the cracking of the colour and the many different layers of paint. A certain level of painting skill is required due to the inherent texture of the soil, which she typically air-dries and sieves to 2mm. Kirsten's paintings have 4-5 layers of soil paint which need to dry completely before applying the next layer. One should not work against time, Kirsten's masterpieces take up to 40h of work on average, patience is key (Greb, 2020).

METHODOLOGY

Research design

The study was experimental and developmental research methods for studying the utilization of organic soil in canvas painting that focuses on the specific research objectives, the nature of the study, and available resources. The study uses the experimental studies which the researcher conduct controlled experiments in a laboratory setting to investigate factors such as pigment extraction techniques, paint formulation methods, drying properties, color stability, or environmental impact.

Locale of the study and respondents

The participants of the study were composed of thirty professionals (Architecture and Drafting Instructors, and Local Artists) and twenty students (Architecture and BIT Drafting students), chosen by the purposive sampling. Purposive sampling is determining the target population, those to be involved in the study. The respondents are chosen on the basis of their knowledge of the information desired (Calderon, 1993).

Research instruments

The instrument used in gathering the data is the Sensory Evaluation Sheet. The items presented in the evaluation sheet were the basis for determining the level of acceptability of natural color from soil for canvas painting. The responses of the fifty (50) evaluators in each three treatments averaged. The averages representing each of the two replications will be totaled and divided by two to get the overall mean per treatment.

Data analyses procedure
The following statistical tools were used in this study are Frequency Count and Mean, Standard Deviation, One-Way Analysis of Variance (ANOVA), Scheffe Test, and the level of significance is set at 0.05.

FINDINGS AND DISCUSSION

The chemical properties of organic soil in canvas in terms of ph level and moisture content
The findings show that the type of soil used in canvas painting was the soil described is sub-soil and it came from the mountain areas in which it was been used for farming and cultivating corn, it was characterized by its light brown to light orange coloration. This information gives artists insight into the appearance of the soil they might be working with, allowing them to anticipate its visual impact on their artwork. According to the test sample of Department of Agriculture –Iloilo, with two sample being brough to test with pH level and moisture content and according to the result the pH level of Sample A was measured at 8.86 and Sample B exhibits a slightly lower pH level of 4.63. These pH values indicate the acidity of the soil.

In canvas painting, soil acidity can influence the stability and color of pigments used, as well as affect the long-term preservation of the artwork. Artists may need to adjust their painting techniques or choose specific pigments based on the pH of the soil they are using. The moisture content of Sample A contains a relatively high moisture content of 28.21% while Sample B has a significantly lower moisture content, measured at 11.03%. The moisture content of soil can impact its workability and how it interacts with paints. Soil with higher moisture content may require longer drying times between layers of paint, while drier soil may result in a more textured surface when applied to canvas.

By considering these chemical properties of soil, artists can experiment with different mediums to achieve specific artistic effects and enhance their creative expression on canvas. Additionally, understanding these properties can aid in the preservation and longevity of artworks by selecting soil that is compatible with desired painting techniques and materials.

CONCLUSIONS AND RECOMMENDATION

Based on the findings and objectives of the study, several conclusions were formulated. By considering the chemical properties of soil, artists can experiment with different mediums to achieve specific artistic effects and enhance their creative expression on canvas. Additionally, understanding these properties can aid in the preservation and longevity of artworks by enabling artists to select soil that is compatible with their desired painting techniques and materials. This knowledge not only expands the creative possibilities for artists but also ensures the durability and stability of their works over time.

Based on the conclusions drawn from the study on the utilization of organic soil on canvas, several recommendations were proposed. Artists, art teachers, practitioners, and enthusiasts should consider selecting organic soil with favorable chemical properties, such as stability, light-fastness, and appropriate pH levels. This careful selection process ensures the durability and longevity of artworks over time, allowing for more sustainable and lasting creations.

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