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VOCATIONAL SCHOOL



PLANT&PAINT

STUDY REPORT ON NATURAL PIGMENTS & FABRICS

*A practical exploration of local plant-based dyes
in creative education by*

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Erasmus+ project NATURAL PAINTS FOR SUSTAINABLE ART AND CRAFTS
(PLANT&PAINT)

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GREECE 2024-2026



Introduction

About the Study

Our study focuses on the use of local plants to create natural paints for paper or cosmetics. Students research aromatic and medicinal plants which are growing naturally in the Greek countryside in order to use their color to paint artworks or pharmaceutical products (creams, bath salts, lip balms, soaps, vitamins – supplements etc.). Researches, excursions in open fields to collect plants and many experiments will be made in order to find the ten most useful plants to cultivate in our school garden.

Project & Work Package Overview

Our contribution to the project is to give to students the opportunity to collect herbs and plants in mountain and fields, categorizing them according to their aromatic qualities, colors or medicinal properties and use them to make pharmaceutical products.

Participants

Teachers

- Zoi Angelosopoulou - Health Care Sector
- Chrysa Monovasiou - Health Care Sector
- Sotiria Tsiapra - Health Care Sector
- Eleni Pappa - Applied Art Sector
- Eleftherios Plavos - Construction Department
- Fotis Pitsiavas – Gardening
- Giota Pantou - Greek Literature Teacher

Students of graphic arts and Health Care sector

- Anastasia Crhistou
- Dimitris Zafeiriou
- Angeliki Tabakologou
- Eva Gonalaki
- Alexandros Labropoulos
- Dafni Anastasopoulou
- Vasileia Marinaki



Experts

- Kyriakos Giannoulis – Assistant Professor of University of Thessaly
- Manolis Manou – Specialist in Medicinal Herbs
- MYRRO – Tea, herbs and skin care company

1. Discovering Local Plant-Based Colors

1.2 Exploring Regional Plants

Greek traditional sources of natural dyes have a long history rooted in the use of local plants, minerals, and other natural resources. These natural dyes were historically used in various crafts, including textile production, art, and cosmetics. Some of the most common traditional Greek sources of natural dyes include:

1. **Woad (*Isatis tinctoria*)** – Known for its blue dye, woad has been used since ancient times to color fabrics, particularly in the Aegean and mainland Greece.
2. **Madder (*Rubia tinctorum*)** – This plant produces a red dye and was widely used in Greece for coloring fabrics, as well as for art and decoration.
3. **Walnut (*Juglans regia*)** – The husks of the walnut tree are used to produce brown and yellowish-brown dyes, commonly used for coloring fabrics and wood.
4. **Pomegranate (*Punica granatum*)** – The peel and rind of the pomegranate produce a rich yellow dye, often used in ancient Greece for textiles.
5. **Oak (*Quercus spp.*)** – The acorns and bark of oak trees provide tannins, which were historically used for both dyeing fabrics and leather tanning.
6. **Saffron (*Crocus sativus*)** – Saffron flowers, which are native to Greece, yield a yellow-orange dye, and were used historically for both textiles and cosmetics.
7. **Sumac (*Rhus spp.*)** – The berries of the sumac plant produce red dyes and were used in Greece for textile and leather dyeing.

These natural materials, many of which grow abundantly across Greece, have provided sustainable and eco-friendly alternatives to synthetic dyes, reflecting the deep connection between Greek culture and its natural environment.



1.3 Historical & Cultural Insights

- **1. Saffron (*Crocus sativus*)**

Uses: Saffron has been used for centuries to produce a vibrant yellow-orange dye. In

- **Color:** Yellow-Orange ancient Greece and other parts of the Mediterranean, saffron was used to dye fabrics, particularly for garments worn by the elite or for religious and ceremonial purposes. The dye was prized for its rich color and rarity. Saffron was also historically used in cosmetics, including face masks and skin treatments due to its anti-inflammatory properties.

2. Lavender (*Lavandula spp.*)

- **Color:** Light Purple, Lavender
- **Uses:** Lavender is well known for its soothing scent, but it has also been used historically to produce a soft, light purple dye. While less commonly used than other plants, lavender was applied in medieval Europe and the Mediterranean for dyeing fabrics, particularly for light-colored garments and decorative textiles. In Greece, lavender has been traditionally used for creating natural dyes for linens, as well as in cosmetics and skincare products due to its calming properties.

3. Chamomile (*Matricaria chamomilla*)

- **Color:** Yellow, Golden Yellow
- **Uses:** Chamomile flowers are used to produce a soft yellow dye, which has been historically applied to textiles such as wool and linen. In Greece, chamomile was used to dye fabrics, especially in the production of lighter textiles like scarves and clothing. The dye was also traditionally used in various artistic applications, including painting and decorative arts. Chamomile's medicinal properties, such as its soothing effects, have also made it a popular ingredient in natural cosmetics, like skin creams and lotions.

1.4. Sustainable Aspects

By using natural dyes derived from local plants, students will be introduced to environmentally friendly practices that promote a greener way of living and working. The use of natural dyes reduces reliance on synthetic chemicals that can be harmful to both the environment and human health. This will encourage them to consider the ecological footprint of their work in the future



Experimenting with Natural Pigments

2.2. Methods of Extraction

- By boiling them. We tried to boil cinnamon, walnuts, onions, beetroot, oregano, pomegranate
- We made powder from flower leaves and plants with the use of mortar

2.3. Testing on Different Materials

- We colorized different variety of paper
- We tried to fabric paper and colorize it
- We colorize crèmes, salt baths and lip balm with the powder of plants, leaves
- We blend powder of beetroot, spiroulina, kourkouma, hibiscus with acrylics to use it in gel printing method

2.4. Challenges Faced & Solutions Found

When we used boiled plants to paint paper the colors were very light. To make them darker we used less water and bigger amount of plants or leaves and the results were better.

2.5. Reflections from Participants

What students and teachers found most interesting

3. Practical Applications & Creative Outcomes

3.2. Student & Teacher Creations

Show casing paintings, or design projects



"herbal color chart"



Samples of boiling herbs



First illustrations using herbal dyes



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Making paper with herbs



Making paper with herbs



Gel printing with plants

3.3 Masterclass Takeaways



Making cosmetics with herbs



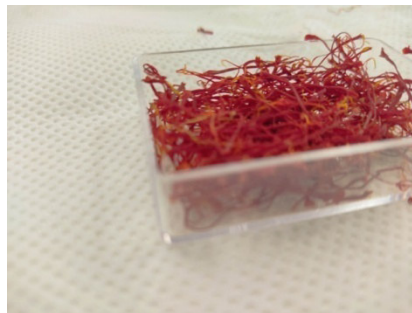
Making cosmetics with herbs



Making cosmetics with herbs



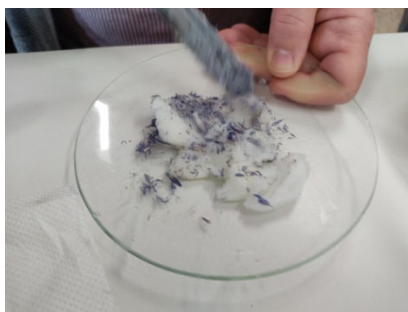
Making cosmetics with herbs



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Making cosmetics with herbs



Making cosmetics with herbs



Making cosmetics with herbs



Making cosmetics with herbs



Conclusion & Next Steps

4.2. Key Insights & Lessons Learned

4.3. Potential for Future Work:

How these experiments may evolve in the project's next phases

4.4. Expanding the Knowledge

How these results will be shared with others (e.g., digital platform, workshops)

5. Appendix – Additional Visuals & Resources

- Detailed List of Plants & Color Results/ **Example Table of Plant-Based Colors**

HERB	COLOR	TASTE	PROPERTIES	HISTORICAL REVIEW / fun fact
Hibiscus	Red, pink or purple	Sour, fruity	Antioxidant, helps reduce blood pressure, boosts cardiovascular health, improves digestion and has anti-inflammatory effects.	It is one of the most popular plants of Ancient Egypt. The Egyptians used it to make the medicinal drink (also known as "Walnut"), which was considered miraculous for the treatment of high blood pressure. A strange and cute use of hibiscus that existed in Egypt was that students at the Egyptian University believed that consuming it would give them "energy for studying" and enhance their memory to pass their exams!
Mountain tea	Golden yellow	Slightly sweet and floral, with an earthy and natural feel.	Powerful antioxidant with many anti-inflammatory properties. Helps strengthen the immune system.	It is a traditional herb used by the ancient Greeks to boost their immune system and detoxify their bodies. The ancient Greeks, especially the Delphians, believed it had sacred power and used it in their temples as an aphrodisiac. Strange Use: During the Ottoman era, mountain tea was also used to scent shoes, because the Ottomans believed that it absorbed the "bad" energies of the body and removed them from people.
Blue Tea	purple / blue	Mild, refreshing	Antioxidant, enhances brain function, protects skin from aging, improves mood and reduces stress.	Blue tea originated in Southeast Asia and was used by Buddhist monks to increase concentration during their spiritual practices. The blue hue of the tea was also associated with spiritual purity. In Thailand, blue tea was used as an ingredient to dye clothes because the intense blue hue was very popular in Thai fashion! There is historical evidence that its natural pigment was more popular than the use of modern dyes.



Licorice	Light brown or gold	Very sweet, with a balsamic and slightly spicy flavor	It soothes the throat and helps with respiratory problems, such as coughs and sore throats. It has a powerful effect on gastrointestinal health, relieving digestive problems and bloating. It can help regulate blood sugar levels and combat fatigue.	Licorice is one of the oldest medicinal herbs used in China and Egypt. The Chinese used it to boost energy and help the body's vitality. A more bizarre use of licorice was that, in the Middle Ages, people believed that if they ate licorice, they could ward off ghosts and ward off bad luck. In other words, it was a kind of natural "amulet" against evil!
Chamomile	Light gold	mild / sweet / gentle	Relaxing, relieves stress and mood, helps with sleep, soothes the stomach.	Chamomile was known to the Egyptians and was used to treat headaches and calm the body. There was even a belief that chamomile could grant eternal life, since the goddess Isis used it to resurrect Osiris. Different uses throughout history: In ancient times, chamomile was also used to cleanse hair and give it a natural shine! It was so effective that they called it "the magical medicinal flowers".
Dittany	Light green	Spicy, slightly bitter with notes of mint and flowers.	Antioxidant - helps with digestion and treating respiratory problems	Dictamon was the favorite plant of the healer Chiron and was considered powerful for healing wounds and regenerating tissue. The Ancient Greeks used it to heal wounds from wars. In Crete, they believed that dittany could make hair grow faster and that if you ate it daily, you would have thicker and healthier hair!
Mint	Bright green	Cool, spicy	Refreshing, helps with digestion and relieves nausea, enhances concentration.	Mint was popular in Ancient Greece, where it was used to clean rooms and flavor foods. The Romans also used it in perfumes and cosmetics. In Egypt, people believed that mint could awaken the dead in an attempt to bring them back to life!
Lavender	Purple	Floral, earthy	Soothing, reduces anxiety and insomnia, helps with relaxation and relieves headaches.	Lavender has a long history and has been used since ancient times, especially by the Egyptians, for its aroma and therapeutic properties. It was used in mystery ceremonies, as an ingredient in perfumes and to disinfect spaces. Hippocrates mentions lavender as a natural remedy for combating anxiety and improving sleep. Lavender in Tradition: In rural Greece, lavender was used to banish odors from the home, as its scent was considered pure and sacred. In addition, many traditions mention that women made lavender sachets and placed them in their clothes to ward off bad luck.
Rosemary	Light green	Spicy, with earthy notes	Helps improve memory and concentration, boosts energy, has anti-inflammatory and antioxidant effects	Rosemary is one of the most well-known therapeutic plants of antiquity, with references to the Ancient Greek physician Theophrastus. The Ancient Greeks and Romans used it to enhance memory and concentration, as they believed that its aroma helped with mental clarity. There were also rosemary treatments to improve memory and mental alertness during exams.



Centaur	soft, light blue color	Bitter and slightly full, with an aftertaste that may be reminiscent of something herbal or dandelion.	Centaur has been traditionally used for its digestive properties and is known to aid digestion and relieve indigestion and bloating. Specifically, it has been reported to: Digestive Support: Helps improve digestion, especially for those suffering from digestive disorders or poor digestion. Detoxification: Traditionally used to help the body remove toxins. Anti-inflammatory Properties: It may have a soothing effect in cases of inflammation and irritated mucous membranes.	In ancient Greece, this herb was referred to as "Centaur" and is associated with the mythical Centaur Chiron. Chiron, according to mythology, used cornflower as a therapeutic plant to heal wounds and relieve pain. There were also traditions that believed that centaur could enhance memory and dispel the "darkness" of the mind. – perhaps that's why he had such a strong connection with Chiron, the mythical doctor who was known for his medical wisdom!
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- Additional Testimonials from Participants

As part of the Erasmus+ project focusing on the use of dye plants, our Greek students had a unique opportunity to participate in exchanges with peers from six other Northern and Southern European countries.

Several students travelled abroad, discovering new cultures, languages, and artistic techniques. "It was the first time I left Greece," said Vasileia. "I was warmly welcomed by Latvian School and students. We took part in workshops using local plants to dye fabrics. I loved the idea that art can come directly from nature."

All students agreed that the experience was enriching not only artistically, but also personally. "We learned how to collaborate with young people from different cultures. And most importantly, we realised that despite our differences, we share the same passion for creativity and the environment," concluded Alexandros.

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