

Natural Pigment Painting

A natural pigment is one that is found in nature that is ground, sifted, washed, and in rarer cases, heated to create a desired hue.

Since their inception, natural pigments served many artistic purposes for ancient cultures around the world.

Natural Pigments/Dyes can be sorted into three categories

1. Natural pigments obtained from plants
1. Natural pigments obtained from animals
1. Natural pigments obtained from minerals.

Natural Pigments/Dyes that don't require mordants are called "substantive dyes."

However, many dyes require a mordant, an element that combines with a dye and the fiber so that the dye is absorbed. These dyes are referred to as "adjective dyes."

**A couple common mordants include iron and tin.*

Natural Pigment Sources and Their Commonly Derived Colors

MINERALS

-  Azurite
-  Chrome yellow
-  Cobalt
-  Malachite
-  Red Ochre

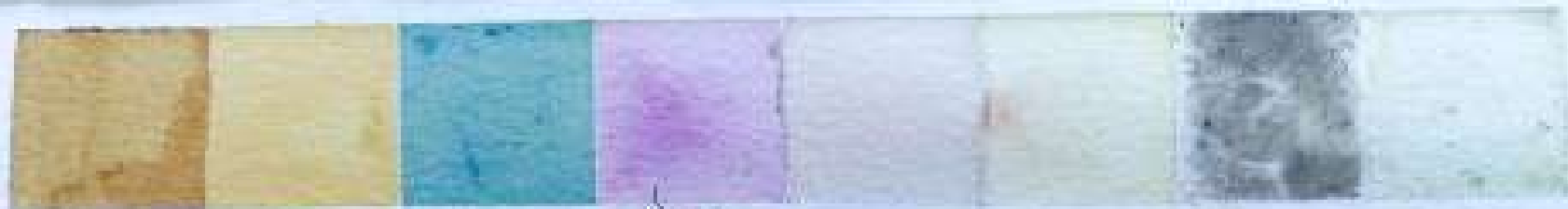
PLANTS

-  Beet Red
-  Blueberry Blue
-  Indigo
-  Madder
-  Saffron

ANIMALS

-  Carmine
-  Cochineal
-  Indian Yellow
-  Sepia
-  Tyrian Purple

Coffee onion blueberry beet beetsgreens carrot ash kale





Natural pigments offer tremendous versatility and accessibility; vibrant colors can be made using resources right from your backyard.

Plants, roots, nuts, fruits, vegetables, and flowers of all different types each generate a unique color when applied correctly



Pigments that come from minerals are found in rocks and soil all over the world.

Different minerals produce their own unique, often vivid, colors. Many are even roasted to intensify the color.



There are fewer examples of dyes obtained from animals than those retrieved from plants and minerals.

However, many colors were extracted from insects throughout history.

Extraction of Natural Pigments

Materials

1. Fruits, Three Leaves and Flowers
2. Mortar and Pestle
3. Acetone, Ethanol and Water as Solvents
4. Filters and Filter Paper
5. Beakers

Procedures

1. Obtain a mortar and pestle and choose a plant for your **extraction**.
1. Add the plant to the mortar and then crush your plant in the mortar with the pestle.
1. Crush as much as you can and then add the solvent (Water, Acetone and or Ethanol).
1. Filter the **extract** to remove all non-soluble plant material.
1. Leave the beaker in the hood to evaporate the Water/Acetone/Ethanol.
1. After the acetone evaporation add just the enough acetone to the beaker until have a high concentrated solution.
1. Use the TLC and or the Paper chromatography to separate those pigments using the best solvent as a mobile phase.



Natural Plant Pigments



Did You Know...



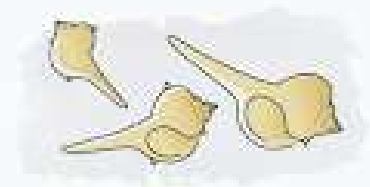
One of the **earliest** recorded **applications** of natural pigments dates back to 5000 B.C. at the **Cave of Hands**, in Argentina.



Scientists found traces of alizarin, a red pigment extracted from madder plants, in the tomb of 18th dynasty pharaoh, **King Tutankhamun**, in Egypt.



Popular rich, brown pigment known as "mummy brown" was made from the **flesh of Egyptian mummies**.



More than **250,000** shellfish were **needed** to extract just half an ounce of "royal purple" dye.

DIY Projects Using Natural Pigments



PAINT A LANDSCAPE

Items Needed



Berries



Colander



Paint brush



Paper or canvas

Instructions

1. Place fruit in a large bowl.
2. Mash well with a fork.
3. Strain the mashed fruit through colander.
4. Mash one more time.
5. Extract as much juice as you can.
6. Add a small amount of flour to thicken.
7. Begin painting your landscape.

Helpful Tips

- For a green color, let spinach leaves steep to extract a hunter green hue.
- To create yellow, add turmeric or ginger.
- If the paint is too thick, add water to adjust to your desired thickness.
- Add a variety of colors to create depth within your landscape.



DYE FABRIC

Items Needed



Plants
of choice



Fabric
of choice



4 cups
of cold water



1 cup
of vinegar

Instructions

1. Mix vinegar and water.
2. Place fabric in mixture for 1 hour.
3. Rinse with water.
4. Cover plants with water in a pot.
5. Simmer for 1-2 hours.
6. Strain plants.
7. Add fabric to the water.
8. Simmer for an hour.
9. Wash fabric in cold water.



STAIN WOOD

Items Needed



Pure earth pigment



Walnut oil



Rag



Wood

Instructions

1. Mix 1 part pigment to 4 parts oil.
2. Combine 1 tbsp. of pigment with 1 cup of water.
3. Boil on high heat until the mixture is thick.
4. Let cool for a couple hours.
5. Rub stain into wood using a cotton cloth.
6. Let each coat dry before starting the next.

Helpful Tips

- Paint several times, letting the wood dry in between.
- Softwoods are the most absorbent.
- Use a sealer to prevent the color from transferring.
- Wear rubber gloves to avoid staining your hands.

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Natural Berry Pigments



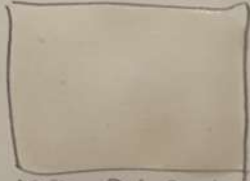
Left to Right: Instant Coffee, blueberries, raspberry, blackberry, pickled onion, pickled beet, turmeric, tea, paprika, all of the pigments mixed in a palette



BLACKBERRY



BEET JUICE
(PICKLED)



RED ONION
(PICKLED)



RASPBERRY



BLUEBERRY



INSTANT
COFFEE



TEA (EARL GREY)



TURMERIC



PAPRIKA

Come up with your own ideas and experiment. Remember that failure only proves you tried something new. I tried to use blueberries and the color is a gross green-brown! I would try cooking the berries in some water in the future. Trial and error!



Red beets



Yellow beets



Amaranth



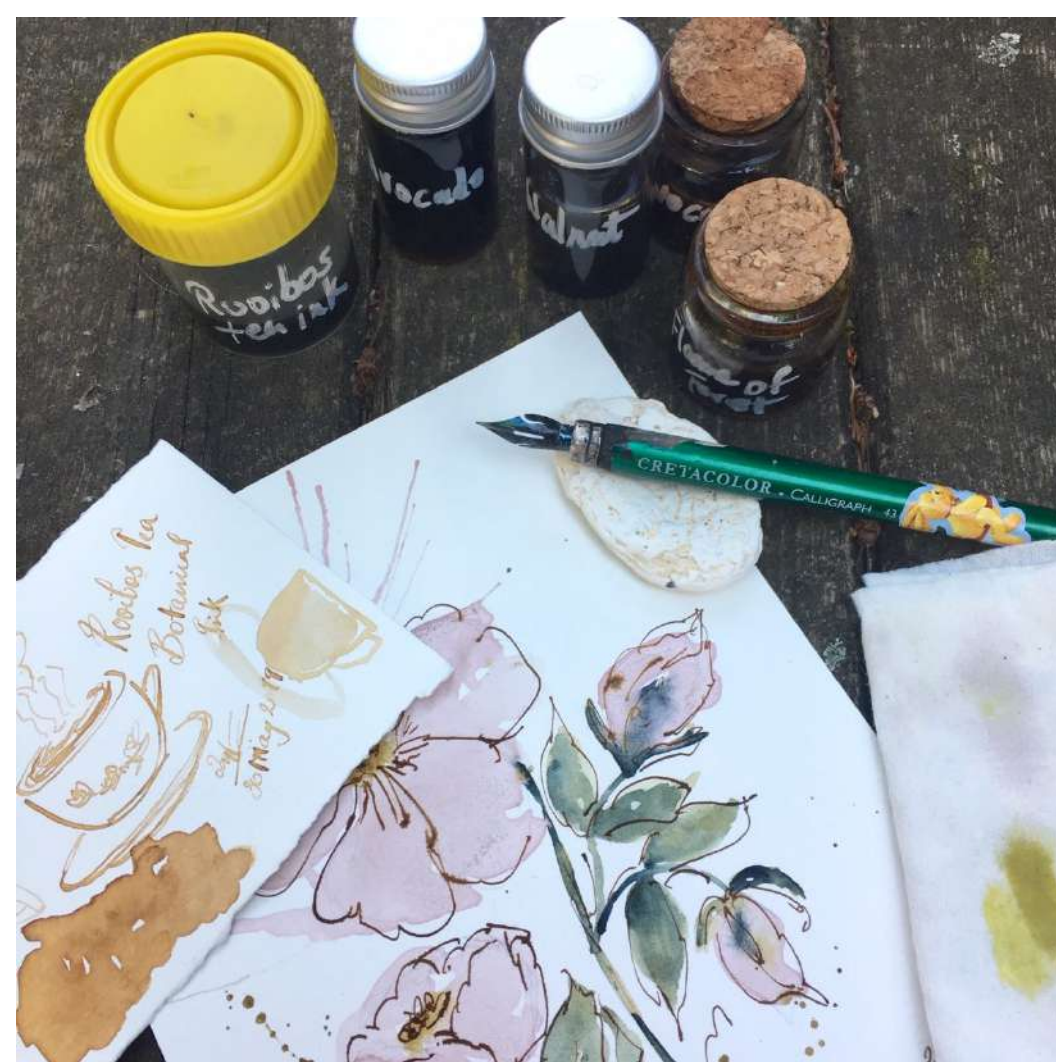
Bougainvillea



Cactus pears







Turmeric
Powder

Cinnamon
Powder

Paprika
Powder

Soluble
Coffee



paprika
powder



cinnamon



[light]



TURMERIC



[more pigm.]



TURMERIC
+ cinnamon



TURMERIC
+ paprika



cinnamon
+ paprika



coffee



TURMERIC
+ coffee



coffee
+ cinnamon



coffee
+ paprika





Fall Leaf Science

Exploring Colors & Chlorophyll





HOW TO EXTRACT
CHLOROPHYLL
FROM LEAVES

Resources

<https://www.invaluable.com/blog/natural-pigments/>

<https://www.invaluable.com/blog/natural-pigments/>

<https://www.miriamfigueras.com/blog/2017/9/15/experimenting-with-turmeric-and-other-natural-pigments>

<https://www.saatchiart.com/print/Painting-Coffee-and-Turmeric-painting-Shudh-Pushp/593840/2840242/view>

<http://brigideda.com/blogs/2013/10/8/tumeric>

<https://theimaginationtree.com/homemade-natural-colouring/>

<https://artful-kids.com/2010/09/08/experimenting-with-natural-paints/>