

COLORING TEXTILES WITH BUGS: OLD [COCHINEAL] AND NEW [BACTERIA]

The Making and Knowing Project & Genspace Community Labs, NJR updated Dec 2018

Mordant bath: ALUM		Dye bath: COCHINEAL		Dye bath: COCHINEAL AND POTASH	
Materials: <input type="checkbox"/> Alum <input type="checkbox"/> Water <input type="checkbox"/> Textiles <input type="checkbox"/> Scale <input type="checkbox"/> Hot plate <input type="checkbox"/> Glass beaker <input type="checkbox"/> Thermometer	<input type="checkbox"/> Stirring stick <input type="checkbox"/> Plate <input type="checkbox"/> Strainer <input type="checkbox"/> Paper towels	Materials: <input type="checkbox"/> Cochineal (dried) <input type="checkbox"/> Drawstring bag <input type="checkbox"/> Water <input type="checkbox"/> Textiles <input type="checkbox"/> Scale <input type="checkbox"/> Mortar and pestle <input type="checkbox"/> Hot plate	<input type="checkbox"/> Glass beaker <input type="checkbox"/> Thermometer <input type="checkbox"/> Stirring stick <input type="checkbox"/> Plate <input type="checkbox"/> Strainer <input type="checkbox"/> Paper towels	Materials: <input type="checkbox"/> Cochineal (dried) <input type="checkbox"/> Drawstring bag <input type="checkbox"/> Potash <input type="checkbox"/> Water <input type="checkbox"/> Textiles <input type="checkbox"/> Scale <input type="checkbox"/> Mortar and pestle	<input type="checkbox"/> Hot plate <input type="checkbox"/> Glass beaker <input type="checkbox"/> Thermometer <input type="checkbox"/> Stirring stick <input type="checkbox"/> Plate <input type="checkbox"/> Strainer <input type="checkbox"/> Paper towels
Procedure: <ul style="list-style-type: none"> ● Measure out water into glass beaker ● Add alum and stir ● Place beaker onto hot plate and turn on to medium-low ● Using the thermometer, note the temperature. Stir to dissolve alum in the water ● Pre-wet textiles with water and wring them out carefully to remove as much water as possible ● When the alum solution has reached 70 °C, add the textiles ● Heat the textiles for 30 minutes at 80-90 °C, stirring occasionally to ensure homogenous absorption by the textiles ● NOTE: monitor the temperature of the bath, adjusting the hot plate settings as necessary ● After 30 minutes, remove the textiles from the bath using the strainer ● Being careful not to damage or felt the textile, wash them with clean water to remove any mordant that has not bound to the textiles ● Wring out excess water 		Procedure: <ul style="list-style-type: none"> ● Using mortar and pestle, crush cochineal to a fine powder ● Measure out crushed cochineal and, using a small utensil, add to the drawstring bag. Close the bag tightly ● Measure out water into glass beaker, and add cochineal bag to the water and “stir” as if you are steeping tea ● Place beaker onto hot plate and turn on to medium-low ● Using the thermometer, note the temperature ● Heat the bath (without the textiles) at 80-90 °C for 30 minutes, stirring occasionally ● NOTE: monitor the temperature of the bath, adjusting the hot plate settings as necessary ● After 30 minutes, add the textiles <ul style="list-style-type: none"> ○ If using mordanted textiles, add the wet textiles ○ If using un-mordanted textiles, pre-wet with water and wring them out carefully ○ NOTE: it is common to remove the cochineal bag at this point, but you can also leave it in ● Dye the textiles at 80-90 °C for 30 minutes, stirring occasionally to ensure homogenous dyeing ● After 30 minutes, remove the textiles from the bath using the strainer ● Being careful not to damage or felt the textile, wash them with clean water to remove any dye that has not bound to the textiles ● When the water runs clear over the textiles and no color comes off the textiles, wring out excess water ● Lay out the textiles on paper towels to dry 		Procedure: <ul style="list-style-type: none"> ● Using mortar and pestle, crush cochineal to a fine powder ● Measure out crushed cochineal and, using a small utensil, add to the drawstring bag. Close the bag tightly ● Measure out water into glass beaker and add cochineal bag to the water and “stir” as if you are steeping tea ● Add potash (note the color change!) ● Place beaker onto hot plate and turn on to medium-low ● Using the thermometer, note the temperature ● Heat the bath (without the textiles) at 80-90 °C for 30 minutes, stirring occasionally ● NOTE: monitor the temperature of the bath, adjusting the hot plate settings as necessary ● After 30 minutes, add the textiles <ul style="list-style-type: none"> ○ If using mordanted textiles, add the wet textiles ○ If using un-mordanted textiles, pre-wet with water and wring them out carefully ○ NOTE: it is common to remove the cochineal bag at this point, but you can also leave it in ● Dye the textiles at 80-90 °C for 30 minutes, stirring occasionally to ensure homogenous dyeing ● After 30 minutes, remove the textiles from the bath using the strainer ● Being careful not to damage or felt the textile, wash them with clean water to remove any dye that has not bound to the textiles ● When the water runs clear over the textiles and no color comes off the textiles, wring out excess water ● Lay out the textiles on paper towels to dry 	

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Dyeing Textiles with Cochineal

<u>SAMPLE 1</u>	<u>SAMPLE 2</u>	<u>SAMPLE 3</u>	<u>SAMPLE 4</u>
Mordant: None Dye: Cochineal	Mordant: Alum Dye: Cochineal	Mordant: None Dye: Cochineal and potash	Mordant: Alum Dye: Cochineal and potash

RECIPES FOR 1 GRAM OF TEXTILE

Adapted from Jo Kirby et al, *Natural Colorants for Dyeing and Lake Pigments: Practical Recipes and their Historical Sources* (Archetype, London, 2014)

Mordant bath: ALUM

- 1g textile
- 0.2g alum
- 50ml water

Dye bath: COCHINEAL

- 1g textile
- 0.125g cochineal
- 62.5ml water

Dye bath: COCHINEAL AND POTASH

- 1g textile
- 0.125g cochineal
- 0.0625g potash
- 62.5ml water