



NATURAL DYEING

By Judith Lange

Everyday plants offer big color.

Imagine a world with no colored fabric. Look in your closet, at your furniture, at your towels and your curtains. Imagine everyone dressed only in white. Such a drab existence does not suit human beings. Long before Rit came in packets, color was everywhere. Beautiful colors were produced from plants, wood scraps, mud, shellfish, even bugs.

My friends and I once spent an entire summer experimenting with natural dyes. It was a fun way to bring more color into our lives; it's sure to be the same for you. Many natural sources of dye are still available today and are simple to use. In this tutorial, I'll show you how to dye wool using the ubiquitous onionskin. This is a grand project for adults and children, singly or in groups (supervise children!).



BASICS »

Mordants: Pump Up the Color

Besides natural dyes, *mordants* were used from very early times. Mordants help the dye molecules bond to the fiber and offer a richer color. In other words, mordants help your material to hold the dye and intensify the color. Common examples (and suggested amounts) include:

- » **Alum** (2oz/lb of fiber) — Available as a mineral powder, or use an aluminum pot.
- » **Iron** (½oz/lb of fiber) — Available as iron sulfate or rust, or use an iron pot, such as a cast iron Dutch oven.
- » **Tin** (⅔oz/lb of fiber) — Available as tin chloride.
- » **Copper** (⅔oz/lb of fiber) — Use as copper sulfate, or use a copper pot.
- » **Chrome** (½oz/lb of fiber) — Use as potassium chromate. When using chrome, please note:
⚠ **WARNING! TOXIC – Handle with care.**

You can get many good colors using only alum, which is safe to work with and readily available in the spice section of grocery stores.

Use a Mordant Before, During, or After the Dyeing Process

Pre-mordant — Dissolve the mordant in 4gal of water (for 1lb. of fiber), add the fiber you'll be dyeing, and simmer for ½–1 hour. You can then put your fiber directly in the dye pot or you can dry it and do your dyeing later.

Mordant during dyeing — Add the mordant to the dye pot along with the dye. Heat to dissolve, add your fiber, and continue heating (at a simmer) for ½–1 hour. This is considered to be less effective than pre-mordanting.

Post-mordant — Simmer water, dye the fiber for ½–1 hour, then add the mordant and simmer for another ½ hour.

NOTE: Unless you are deliberately using an aluminum or iron pot to mordant, use enamel or stainless steel so as not to contaminate the dye.



START »



Some results of our dye experiment and a lot of white wool and mohair.

1. LEARN THE BASIC DYE RECIPE

For a dye bath for ½lb of plant or animal fiber:

- Use about 4gal of water. (If your water has a high mineral content, it may alter the color of the dye. If you care about this, use bottled or distilled water.)
- Add dye matter. Formulas are available online and in many excellent books on natural dyeing (see Resources on page 154). If experimenting, start with equal weights of dye and fiber.

⚠ WARNING! Once you use a pan for dyeing, don't use it for cooking. You can't be sure all plants and minerals are safe.

- Simmer the pot for ½ hour or so to release the color from the plant material, then remove the plant matter. If you leave the plant material in the pot with your fiber, the color may be uneven. If you like variegated color, leave the plant material in!

MATERIALS

- » ALUM, 1–2oz, AVAILABLE AS A MINERAL POWDER, OR USE AN ALUMINUM POT
- » WATER, UP TO 4GAL; DISTILLED OR PURIFIED WATER IS PREFERABLE.
- » NATURAL FIBER, ½LB, SUCH AS WOOL, OR SOMETHING LIKE A PAIR OF WOOL SOCKS
- » ONIONSKINS, ½LB, YELLOW AND/OR RED. ASK YOUR FRIENDLY GROCER IF YOU CAN SCAVENGE THROUGH THE BOTTOMS OF THE ONION BINS.

- Add pre-mordanted fiber and simmer ½–1 hour. Let stand overnight, or remove the fiber at this point.

NOTE: It's impossible to color-match plant dyes. The plants you're using may grow in different soil, weather, and water conditions, and there may be a number of varieties within the species. Fibers also take dyes differently.

2. DYE YOUR YARN WITH ONIONSKINS

So much for the generalities. Now let's dye wool yarn with onionskins (yellow and red mixed).

2a. Mordant the wool in an enamel pot containing 1–2oz of alum dissolved in 2gal of water. Our actual weight of fiber is ½lb. Simmer for ½ hour. Let cool in the liquid, then proceed to dyeing, or let the fiber dry and dye at a later time. You can reuse this water for mordanting more fiber (but not for dyeing).

2b. To prepare the dye pot, place ½lb onionskins in 2gal of simmering water for ½–1 hour. Remove the onionskins, if desired, and then add the mordanted wool (wet or dry) and simmer another ½–1 hour.

2c. Alternatively, place the onionskins and the mordanted wool in 2gal of simmering water, and simmer ½–1 hour. (Skins can be placed in a net bag if desired.)

NOTE: This same procedure can be used for many protein fibers, including wool, mohair, alpaca, llama, rabbit, and dog, and also for most dyes on cotton and linen.

2d. Try other dyes to achieve different colors, such as madder for red and eucalyptus leaves for brown. Yellows, browns, and reds are easy to get, but blues from indigo and woad are more complicated. Many books will suggest different plants to dye with. We did experiments with 50 plants in a summer; Ida Grae's book *Nature's Colors* lists 250. See the next page for more natural dyeing materials.

*** TIP:** The fibers don't need to be white; interesting colors come from naturally colored fibers and from over dyeing previously dyed things.

NOTE: If you are a more casual type of "cook," play my favorite "what if" game, and just throw a bunch of fiber, a bunch of onionskins, and a tablespoon or so of alum together and go with it! Play and see what happens.



3. RINSE AND DRY

3a. Lift your fiber out of the pot, or drain the liquid off.

3b. Rinse the newly dyed fiber with water that's about the same temperature as the liquid you took it out of. Rinse off the excess dye until the water runs clear. Do not agitate the wool.

3c. Air dry (don't use a hot dryer!).
Now you're done. Enjoy!



Variations

Mordant some yarn with alum, and some with iron. Then dye them both with onionskins. You will now have 2 colors to work with. If you put more than one color or type of fiber through the same process together, you will have several colors to use together. A vast array of colors can be achieved by overdyeing one color over another, and by using different mordants. Your options are endless. Have fun!

Dyes to Try

- » **Rich browns** — walnut hulls, eucalyptus leaves
- » **Reds** — madder, cochineal bugs
- » **Brilliant yellows** — lichens, safflowers
- » **Good yellows** — onionskins with alum
- » **Oranges** — coreopsis and onionskins, dahlias with tin and iron
- » **Greens** — somewhat difficult to get without overdyeing. Overdye a yellow with indigo. Try using copper or iron as a mordant, which produce an olive green with some natural dyes.



The 2 skeins on the left were dyed using well water that contained iron, along with onionskins and an alum mordant. The roving on the right was dyed using the same process, but with distilled water.

FINISH X

➤ See History and Resources on next page. Go to craftzine.com/04/101 for a list of materials sources.

Judy Lange has been an artist and teacher for most of her adult life. She says her science-and-art background is a lovely mix. Currently, she raises angora goats and sheep for their quality of fiber; teaches spinning, felting, and dyeing; and sells yarn, fiber, and animals. Her favorite question is "What happens if ...?"

HISTORY »

Dyeing Throughout History

Natural dyeing was a common profession through much of history, and in Europe, the dyers of red cloth were literally in a class by themselves. Some other interesting facts:

- » **Woad** was used by Celtic warriors to paint their bodies blue to scare their enemies. In wool and weaving industries, woad was used as a dye fiber. It became a major crop in medieval Europe, and later in colonial America.
- » **Indigo**, grown in India for 4,000 years, gave a more intense dye but was much more expensive. It was banned from Europe to protect woad farmers.
- » Red, the color of royalty, was not available to ordinary folks because of its rarity and cost. **Madder** roots, which give a strong red, became a main source of wealth in Europe during the Middle Ages. At its peak in the 1800s, world production was 70,000 tons, with Britain spending £1,000,000 a year to import a third of the total. Redcoats, anyone?
- » **Cochineal**, from a Mexican insect used by the Aztecs, was a major source of income for the Spanish after they conquered Mexico. They exported the bugs to Europe for brilliant reds. ❌

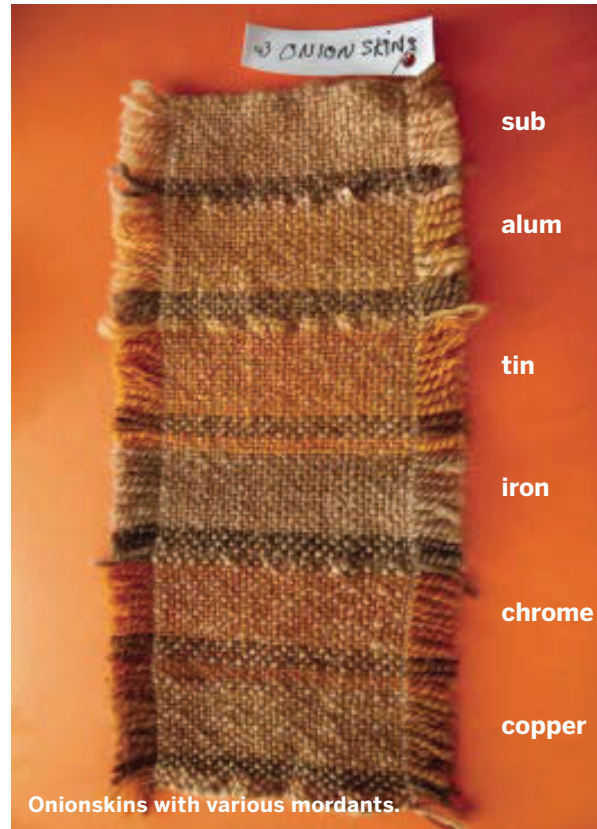
RESOURCES

My county library has 24 books on natural dyes, with some useful information in all of them. These are a few favorites:

Nature's Colors: Dyes from Plants by Ida Grae, Macmillan Publishing 1974, Collier Books 1979, Robin & Russ Handweavers 1991, out of print. A very good book.

A Dyers Garden: From Plant to Pot, Growing Dyes for Natural Fibers by Rita Buchanan

Dye Plants and Dyeing: A Handbook by the Brooklyn Botanic Garden, a special printing of *Brooklyn Botanic Garden Record: Plants and Gardens* Vol. 2, 1969. I have the 9th printing, 1973.



Onionskins with various mordants.



Cochineal dye with various mordants.