Courting Purple through *Indigofera tinctoria*

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Not all indigo-producing plants are created equal. Many are not even botanically related and therefore may contain quite different and surprising potentials unique to each species.

Let's examine purple for now. Most citizens are loyal to the particular color of indigo produced by their community – yes, even in its darkest state, there are many different colors of indigo blue! The blue called *Japan blue* – derived from *Persicaria* - seems to be the bluest of the major groupings which include "Indian blue" (*Indigofera*) and "Okinawan blue" (*Stobilanthes*). The rich indigo blue associated with cottons from India have a slightly redder cast to them, and those produced in Okinawa using *Stobilanthes cusia* just a touch more.

Even though all are certainly a very dark, rich blue, and not the least bit purple, still, if placed side by side, there is a difference.

On a molecular level, all contain the same *indican*, the precursor to indigo (*indigotin*). All follow the same basic formula of *indican + oxygen = indigotin*. This slight shift to the red is caused by an additional ingredient found in the cells of the leaves, called *indirubin*. Not all indigo-producing plants contain *indirubin* but these three families do.

For now, I'm going to address just *Indigofera* in guiding you through the production of purple. It's surprisingly easy and reliable.

The original recipe for this was told to me by someone in Japan in the 1970s, who heard it from a friend who saw it in a book somewhere long ago, and I jotted down notes. To be honest, I didn't believe it would work at the time, didn't have access to dry *Indigofera* leaves, and so just set it aside until recently.

I've tested it, cleaned up my notes, made adjustments, and am offering it to you in the hopes that you'll be as delighted with the results as I have been.

GETTING STARTED

Prepare several moderately light-weight silk scarves ahead of time by pre-washing them and setting them aside in a plastic bag to keep them from drying out. Of course, silk yarn or any other protein fiber will also work.

I can't grow *Indigofera* where I live. Deb McClintock generously sent me some from her garden in Texas. She sent me *Indigofera suffriticosa* (American indigo) not the *Indigofera tintoria* (Indian indigo) mentioned in the title. However, they are both in the Indigofera family and in this case behave the same. I decided to use half of what she sent for the first test – 120*g*, but you can easily adjust the recipe to fit what you have available to you.

INGREDIENTS with ratios to help you figure out how much you will need of each

-**dried *Indigofera tinctoria* leaves**

-**silk yarn, yardage, or scarves** with a total weight roughly equal to that of the dry leaves you'll be using

Using a whole kilo of dry leaves? You may be able to dye up to a whole kilo of silk depending on how dark you would like the colors to be.

-**soda ash** one gram of soda ash for every three grams of dry leaves used
-**RIT color remover (Perlite) or thiox** one gram of RIT for every three grams of dry leaves used
-water 1 ¼ cups (85cc) of water for every ten grams of dry leaves used
-pH paper
-thermometer
-**scraps of silk** for testing
-vinegar (optional)
-citric acid (optional)

WHAT I USED

120g of dry leaves
40g of RIT (we'll be dividing this into two batches of 20g each)
40g of soda ash (we'll be dividing this into two batches of 20g each)
a bunch of silk (who weighs their silk first?)

DIRECTIONS

① Wash your leaves (120g).
To do this, place your dry leaves into a non-reactive container, cover with plenty of water, and steep for about ten minutes or so (OK to boil for longer if you get distracted and forget about the pot on the stove for a while). Pour off the now yellowed water and save the leaves. The color we want is still in the vegetable matter.
② Bring a fresh pot of water to boil and allow it to cool for a bit - down to around 140ºF (60ºC). Add half your soda ash (20g), half your RIT (20g), and all your wet leaves. Stir well and monitor it for about ten minutes, keeping the temperature at about a constant 140ºF (60ºC), heating as necessary. Turn off the heat and allow it to sit for another ten minutes.
③ Strain out the leaves. We'll be using the liquid, our reduced solution.

④ Repeat steps ② and ③ above, reusing the same leaves and the remaining chems you prepared earlier. Combine the two batches.

DYEING THE COLORS

⑤ Heat or cool the combined batches to around 110ºF (44ºC) or very warm to touch. The pH should be around 10, but as high as pH 10.5, or as low as pH 9.5 will still work. If any schmutz forms on the surface, gently spoon it off.

For the next few steps you're going to have to pay attention. The color will start to shift a bit as you introduce your fiber. If the actual shade of purple is important to you, I recommend the following:
☞ Prepare several small strips of the same fabric or yarn you will be dyeing.

☞ Prepare the strips ahead of time exactly as you did the main batch of fiber (you may even want to label them 1, 2, 3, etc., as a reference for next time).
☞ Place the sample strip into the water and let it steep until it turns a color you like and once it does, introduce all of your fiber at one time to achieve a uniform shade. Pay attention to how long the strip steeped. Length of time, temperature, and pH all affect the outcome, which is what makes this so magical!

⑥ Carefully introduce your fiber to the pot. Swish it gently and allow it to steep for around five minutes or until you have achieved the color you think you are after. Wring, and open it up to fully expose to the air to oxidize. Rinse.
⑦ Continue to add more fiber and steep until you've either used up all the color in the dye, or it has darkened beyond the color you would like for today. The color will gradually shift from darker purples, to brighter purples, to greyer purples and finally to grey with a blueish-purple cast. Timing is important.

Protein fibers don't like the higher pH range – it's like bleaching a silk blouse. As you rinse the dyed fiber, most of the alkaline aspect of the dye will be diluted and washed away. However, if you're concerned about damage to the fiber, a gentle acid rinse (a splash of vinegar in a large bowl of water) will neutralize it completely.

On the other hand, protein fibers are OK with the lower pH range. I've been playing with placing the purple-dyed fibers into rather low pH solutions made by adding a little (very little) citric acid to warm water. Just dipping into a solution of around pH 4 can give interesting results. I've taken it down as low as pH 0.5. CAUTION: Just because "citric" acid sounds all friendly doesn't mean it's not still acid. As you dip down into the lower range it can cause severe acid burns on your skin. Make sure your hands and face are well protected if you venture below pH 5.

Be prepared to be amazed!
-John