

# Process for Dyeing with Woad



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1. Collect woad leaves and process them while still fresh. You will need about four times as many leaves by weight as the fabric you wish to die. Collect only the leaves, not the stems. They are best collected in July-August when they contain the maximum amount of indigotin pigment.

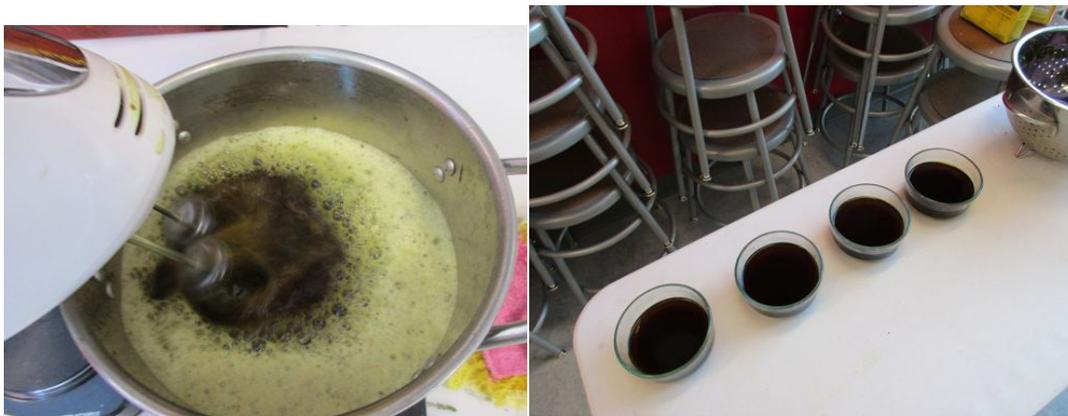


2. Rinse off the leaves in water, then tear them into small pieces (about 1 inch square).



3. Fill a cheap stainless steel 10 quart pot with water and heat it to 90° C. Soak the leaves for 10 minutes in the hot water with a lid on. **DO NOT BOIL.**

4. While the leaves are soaking, fill a sink with ice water. Place the hot pot in the ice and stir the leaves. You need to bring the temperature down to 50° in about five minutes time, or the heat may destroy the indigotin.
5. Pour the solution through a colander and into a bucket. Squeeze the leaves to extract as much liquid as possible. Wear gloves as the solution is still hot. Discard the leaves.
6. Add soda ash or washing soda to a small container of hot water, then stir into the bucket, enough to bring the pH to about 9. The dye bath should darken to a greenish-brown color.
7. Pour the solution back into the pot and put the pot back on the stove. Using an electric mixer, whisk the dye bath for at least ten minutes to oxygenate the solution and precipitate the indigotin. It should get frothy, and turn blue, then green again. Keep the solution near 50° C.



8. For the woad to bond to fabric, no mordant is needed but the woad precipitate must be re-dissolved by reducing it to leuco-indigotin (white indigo). Sprinkle a tablespoon or two of thiourea dioxide (Spectralite) or sodium hydrosulfite (sodium dithionite –  $\text{Na}_2\text{S}_2\text{O}_4$ ) on the surface. These are reducing agents that will pull the oxygen from the solution and from the indigo. From now on, DO NOT STIR the solution or you will put oxygen back into it. Let the pot simmer at 45-50° C by keeping a lid on it and occasionally turning the heat back on. You will need to simmer it for 30-60 minutes, until the solution turns a light transparent yellow-green color.
9. Meanwhile soak your fabric in hot water (50-60°C). If it is yarn, it should be soaked overnight and the heat turned up at the end. Keeping the fabric hot will prevent shocking the indigotin solution and destroying the color.
10. When the solution is yellow-green, carefully slide the hot fabric in without splashing, dripping, stirring, or disturbing the solution. The leuco-indigotin will penetrate the fabric. Leave it in for about 10 minutes. For variations in color, slide part in at a time. The later will have a lighter color as the indigo is used up.



11. Carefully remove the fabric without rinsing and hang it up where air can get to it. If you've done everything right, the yellow-green cloth will turn blue as oxygen converts the leuco-indigo back to regular blue indigo, where it becomes insoluble and binds with the fabric.

12. When the fabric has finished turning blue, carefully rinse it out in warm water and hang it up to dry.