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# DYEING INSTRUCTIONS

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All weights and measures are expressed as % of WOF (% of the Weight Of Fiber).

## WATER QUALITY AND VESSELS

For the dyeing and (especially) for the mordanting step, the softer your water, the better your results. Distilled, soften or rain water is better. If you use tap water, we recommend to add 1-2 teaspoon/L of white vinegar. Avoid hardwater (except for wetting and preliminary rinsing of the fibers).

Manual mordanting and dyeing operations usually use a liquor ratio of 1/7 to 1/30 (e.g. 7-30 L of water for 1 kg fiber).

It is better to use stainless steel or enamel containers, large enough to well immerse your fibers.

It is recommended to wear gloves when handling and a mask when weighing mordants and dye extracts.

## FIBERS PREPARATION

Weigh the dry fibers before rinsing.

Calculate the necessary quantity of mordant and extract in % WOF.

Rinse the fibers to be dyed (skeins, fabrics...) in a hot soap bath. Do not use acidified water at this step.

**For cellulosic fibers** (cotton, linen, hemp...), use a hot soap bath with a little washing soda.

Heat the bath up to 50-90°C (= 122-194°F). Then rinse the fibers with clear water.

## MORDANTING

Soft water (or water with vinegar) is better for this step (see above recommendations).

Dilute the mordant in mild water (around 40°C = 104°F) then immerse the fibers previously rinsed.

### PROTEINIC FIBERS (WOOL, SILK)...

Mordants :

- alum (4-15 % WOF) + cream of tartar (3-6 % WOF). Cream of tartar helps for a better fixation of alum and exhaustion of the dyebath.

- ferrous (iron) sulfate (1-3 % WOF). This mordant is used for dark shades (bronze, browns, grey, black) and usually provides lightfastness and washfastness a little higher than alum.

- titanium oxalate (1-5 % WOF). Interesting mordant that provides different orange shades in combination with tannins and yellow dye extracts.

Dilute the mordant in mild water (around 40°C = 104°F) then immerse the fibers previously rinsed;

Heat slowly (2°C / min = 35°F / min.) up to 80°C = 176°F (silk) or 90°C = 194°F (wool) for 45 min while regularly stirring the fibers. Allow the fibers to cool **into the bath**.

Rinse once or twice at room temperature.

Advice : The mordants can be mixed. Making mixtures with two mordants in different proportions (for instance alum and iron) will allow you to enlarge your range of shades (and will slightly improve light- and washfastness due to the iron salts).

## CELLULOSIC FIBERS (COTTON, LINEN, HEMP)

It is more difficult to have a good fixation of mordant on cellulosic fibers. A preliminary tannin bath (with a low coloured tannin) is recommended before the mordant bath to enhance its fixation.

We did select two gallnut extracts (= tannic acid) and a tara extract, very little coloured. Use at 4-20 % WOF.

Other tannins (myrobalan, acacia, chestnut) may be used but they will bring a background colour that will interfere with your final shade.

Dilute the tannin into mild water (around 40°C = 104°F) then immerse the fibers previously rinsed.

Heat slowly (2°C / min = 35°F / min.) up to 80°C = 176°F for 45 min while regularly stirring the fibers. Allow the fibers to cool **into the bath**.

Advice : This step can be avoided but it will improve your natural dyeing (better fixation of the mordant, slight lightfastness improvement).

Mordants :

- alum (4-15% WOF) + sodium carbonate (1-3 % WOF). Sodium carbonate allows a good fixation of alum in alkaline conditions;

OR

- aluminum lactate or aluminium acetate (4-15 % WOF). For cellulosic fibers, this mordant provides better results than alum

OR

- ferrous (iron) sulfate (1-3 % WOF). This mordant is used for dark shades (bronze, browns, grey, black) and usually provides lightfastness and washfastness a little higher than alum.

OR

- titanium oxalate (1-5 % WOF). Interesting mordant that provides different orange shades in combination with tannins and yellow dye extracts. On cellulosic fibers, prefer a reversed bath : 1- tannin, e.g. Gallnut then 2- titanium oxalate).

Advice : The mordants can be mixed. Making mixtures with two mordants in different proportions (for instance alum and iron) will allow you to enlarge your range of shades (and will slightly improve light- and washfastness due to the iron salts).

Dilute the mordant in mild water (around 40°C = 104°F) then immerse the fibers previously rinsed;

Heat slowly (2°C / min = 35°F / min.) up to 80-90°C = 176-194°F for 45 min while regularly stirring the fibers. Allow the fibers to cool **into the bath**;

Rinse once or twice at room temperature.

## DYEING

The extracts can be used at 1-15 % WOF or more. 3-10 % WOF usually provide good results.

For more precision, see the technical recommendations for each extract.

Dilute the dye extract into a small quantity of mild water (about 10X water at 40°C = 104°F), well homogenize to allow a good solubilization of the extract then pour into the dyebath (eventually while filtering or eliminating insoluble particles).

Then immerse the fibers previously rinsed to start the dyebath.

Heat slowly (2°C / min = 35°F / min.) up to 80-90°C = 176-194°F for 45 min while regularly stirring the fibers. Allow the fibers to cool **into the bath**;

Rinse once or twice at 50-60°C (= 122-140°F) in order to eliminate the dye that would not be well fixed.

## COLOUR SHADING

After the dyebath, you can make additional baths with diluted mordants or tannins that will change the initial colours and create new shades or effects.

## TAKING CARE OF YOUR TEXTILES IN NATURAL DYEING

In order to preserve your textiles in natural dyeing, we recommend :

- To wash your fabrics at maximum 40 ° C.
- To avoid washing powders (which contain bleaching agents that will quickly fade your color) and bleach. Your textiles can be washed with soap nuts (without bleach that is sometimes recommended), with washing balls or with a liquid detergent.
- To dry your fabric away from direct sunlight.