# 12

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*natural dyes*
*for hand papermaking with cotton fibers*

by Genevieve Nordmark

# List of Dyes



*Thread waste from the production of cotton fire hose was prepared for dyeing using pH neutral water in the following manner:*

soaked for 24-hours in water
simmered for four hours in water with soda ash at 20% WOF, then rinsed
mordanted for 45 minutes in a 87-93°C water bath with tannin at 8% WOF
soaked for two hours in a 50°C water bath with alum acetate at 8% WOF
rinsed in calcium carbonate
(50g to 5L solution)

*WOF - weight of fiber, as received*
*After dyeing, all fibers were left to soak overnight before processing into pulp for papermaking.*

# Buckthorn

*(Rhamnus spp.)*

Species native to the Middle East and Mediterranean. Also known as Persian Berries. Color comes from the unripe berries of the plant. Most commonly produces warm yellows.

*Dye with extract at 2-6% WOF*
*Cream of Tartar at 5-6% WOF*



146g fiber
10g dye
9g cream of tartar
quebracho tannin
simmered for one hour

# Chestnut

*(Castanea sativa)*

Chestnuts, from the tree of the same name, are an excellent source of tannin. Dyeing with chestnut produces warm browns.

*Dye with extract at 5-10% WOF*



100g fiber
10g dye
simmered for one hour

# Cochineal

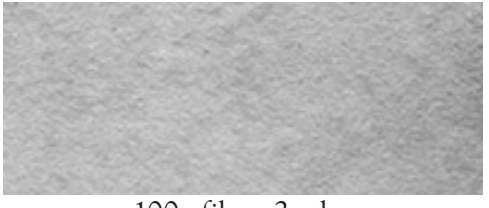
*(Dactylopius coccus)*

The female cochineal insect colonizes the prickly pear cactus of Mexico, Central and South America and the Canary Islands. The dye is extracted from dried insects and exhibits high light and washfastness. Many colors can be achieved including fuchsias, reds and purples depending on mordants and pH level.

*Dye with extract at 0.5-10% WOF*



100g fiber, 2g dye
gallnut tannin
simmered for one hour



100g fiber, 2g dye
50g cream of tartar
gallnut tannin
simmered for one hour

# Coreopsis

*(Coreopsis tinctorium)*

Widespread throughout North and Central America. The dye is located in the flowers. Colors range from warm yellows to orange. Reds result from more alkaline pH.

*Dye with extract at 5-10% WOF*



90g fiber
9g dye
gallnut tannin
simmered for 1.25 hours

# Dyer's Broom

*(Genista tictoria)*

Also known as Greenweed. A small shrub from the dry woodlands of Europe. It has long been used to produce shades of yellow and is very lightfast.

*Dye with extract at 7-10% WOF*



100g fiber
10g dye
gallnut tannin
simmered for 1.25 hours

# Eastern Brazilwood

*(Caesalpinia punctata)*

This is an old-world dye. The country of Brazil was named after a dyeplant from the same family, (*Caesalpinia echinata*). The plant used here is Sappanwood and has the colourant Brazillian, extracted by simmering woodchips. It produces a range of colors including reds, purples and oranges, depending on pH.

*Dye with extract at 8% WOF*



100g fiber
8g dye
1 Tum's tablet
quebracho tannin
simmered for one hour

# Golden Rod

*(Solidago canadensis)*

A wildflower common in North America and Europe. It is a well known source of yellow.

*Dye with extract at 8% WOF*



100g fiber
10g dye
gallnut tannin
simmered for one hour

# Lac

*(Kerria lacca)*

A scale insect of Southeast Asia which invades fig and acacia trees. The colorant is extracted from the resin secreted by the insect. Similar to cochineal in color but slightly muted. The dye is very sensitive to changes in pH.

*Dye with extract at 10-15% WOF*



30g fiber mordnated w/gallnut
30g fiber mordanted w/quebracho
9g dye
3.5g cream of tartar
simmered for 45 minutes

# Logwood

*(Haematoxylum campechianum)*

The dye is from the heart of the logwood tree and been a prized source of purple since the 16th century. It has good washfastness and moderate lightfastness. Iron can improve the lightfastness and turns the color turns shades of grey. Colors develop best in slightly hard water.

*Dye with extract at 0.5-1% WOF*
*Do not excede 60 minutes or 82°C*



100g fiber, 1g dye
1 Tum's tablet
simmer for one hour

100g fiber, 1g dye
2g ferrous sulfate
simmer for one hour

# Madder Rich

*Rubia tinctorium*

A dye with long history of use. Its primary dye component is alizarin, which is extracted from the root. With different dyebath preparations it can produce a range of reds, browns, and even purples.

*Dye with extract at 2-5% WOF*
*Dying above 82°C* will bring out browns



100g fiber
5g dye
gallnut tannin
dye bath held at 60°C for one hour
fibers added
simmered for one hour at 180°C

# Pomegranate

*(Punica grantum)*

The dye is found in the skin of the fruit. The dye is high in tannin and will produce warm tans, golds and yellows. Combined with iron it produces cement greys and moss greens. It improves the light and washfastness of any dye it is mixed with.

*Dye with extract at 10-15% WOF*



74g fiber
11g dye
2g ferrous sulfate
simmered for one hour

# Quebracho

*(Schinopsis quebracho-colorado)*

This dye comes from a South American tree and is very high in tannin. The color varys depending on species, resulting in coral, warm red brown, yellow or green

*Dye with extract at 5-10% WOF*



90g fiber
9g dye
2g ferrous sulfate
7g quebracho tannin added to dye bath
simmered for one hour

# Colophon

Dyes were purchased as extracts from Maiwa and Couleurs de Plantes. The dyed papers were produced between 9/2014 and 12/2014.

Base Paper: Yasutomo & Co. SUMI-E Painting Sketch Paper
Font: Goudy Old Style

To read more about this project see: www.thefiberwire.com
Additional dye information can be found at: www.maiwa.com