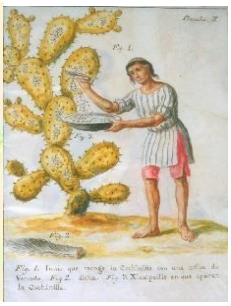
NATURAL DYEING FOR THE ARTISAN DYER

Dyes, Mordants & Additives
Description, History and Instructions

By KRAFTKOLOUR
Unit 2 /99 Heyington Ave
Thomastown, Vic, Australia 3074


MORDANTING fibre for NATURAL DYING

Dyeing cloth dates from as far back in history as the textile industry itself. As long as humans have clothed themselves, they have been interested in decorating and colouring the fabrics they wore.

MORDANTS, TANNINS, AUXILIERIES & FIBRE PREPARATION

There are records in existence from China where they were dyeing silk in 2600 B.C. using natural dyes. In Thebes Egypt a garment dyed with Indigo dating from 3500 B.C. was found in a tomb. The scarlet used in the Tabernacle curtains in the Bible were no doubt dyed with Kermes.

The dyes employed by these ancient dyers were largely found local to where they lived. Dyers literally went into the forests and foraged for what they knew would yield colour.

In the mid 1800's the development of synthetic dyes radically changed the range of colours and textile dyeing methods and have since largely replaced the commercial use of natural dyes. Recently there has been a renewed interest in dyeing with plant materials and contemporary dyers are enjoying the natural dyeing journey - the fact that they are a nontoxic & renewable source of colour. An infinite and sometimes unexpected range of subtle colour variations can be achieved using individual plant-based dyes on their own or in combination. This is further expanded by **'pre mordanting'** with different metallic salts and auxilieries.

The natural dyeing journey is one of experimentation, creativity and colour manipulation. Be ready to go with the flow, keep written records and samples so you can reproduce your favourite results. We recommend you always test some small samples before dyeing large quantities of fibre or fabric.

THE NATURAL DYERS' MORDANTS

The most common DYERS MORDANTS [Metallic Salts] are Alum, Iron, Copper and Tannin - the least toxic being Alum, Iron & Tannin. Copper is a useful mordant and though it gives much brighter shades remember it is toxic to marine life and humans so use it sparingly: it will need to be handled and disposed of carefully. Historically Tin and Chrome have also been used but are extremely hazardous to the environment & your health. For those reasons we don't sell either product. Always wear gloves and work in a well ventilated space. Use only non-reactive dye pots (Glass or Stainless Steel). If you use copper or iron pots it will change the shade of your dyes (which can be fun!)

WEIGHTS & MEASURES

WOF = Weight of Fibre

This tells you how much dye/plant matter and or mordant you need for a given shade

For example:

- 15% WOF equals 15 parts of dye/mordant to 100 parts of Fibre.
  15gms dye/mordant to 100gms Fibre
- 50% WOF equals 50 parts of dye/mordant to 100 parts of Fibre

The higher the percentage figure – the more dye/mordant you use. Always weigh your fibre when it's dry. The amount of water in a dyebath is not relevant as long as you can comfortably move your fibre to avoid patchy dyeings.

Kraftkolour, Unit 2/99 Heyington Ave, Thomastown, Victoria, Australia, 3074 Ph: 61 3 9465 4865 Web: Kraftkolour.net.au
Email: info@kraftkolour.com.au

FABRIC & FIBRE PREPARATION

Make sure your fabric is either prepared for dyeing [PFD], prepared for printing [PFP] or washed thoroughly in hot water using any standard washing detergent or mild soap.

MORDANTS

ALUMINIUM SULPHATE

ALUM is one of the most commonly used mordants for natural dyeing. Alum is a safe chemical to use but it can sometimes be contaminated with Iron which will result in duller colours. Our Alum is certified pure. It has a great affinity for Protein fibre but not so much for Cellulose so you will need to use Tannin [which has a high affinity for cellulose]. *Usually used at 15% WOF*

ALUMINIUM ACETATE

ALUMINIUM ACETATE is used as an alternative to Alum for dyeing cellulose with natural dyes because it gives richer colours and is recommended if you're printing with natural dyes and plant materials. Using Calcium Carbonate [chalk] will help fix it to the fibre. *Usually used at 5 to 8% WOF*

POTASSIUM ALUMINIUM SULPHATE

POTASH ALUM is the most common mordant of choice for natural dyeing Protein (animal fibres) and Cellulose (plant fibres). It gives bright clear colours with good fastness and is safe to use. *Usually used at 15% WOF*

COPPER SULPHATE

COPPER tends dull colours and turn them blue green. You can use Copper as a premordant or as an after treatment to adjust colours. Colours dyed with Copper are usually more lightfast than those dyed with Alum and has a less harsh effects on Protein fibres than Iron. Dispose of Copper solution responsibly by exhausting your dyebaths, diluting the residue with clean water and don't put it down the storm water. *Used at 2 to 4% WOF.*

FERROUS SULPHATE

IRON is only usually used to deepen and darken the colour of a dye. It also makes natural dyes lighter and wash fast but can dull the colour. More often used with cellulose than protein as it can make protein fibres brittle and harsh. Iron changes shades to deeper, darker shades and is better used in a remordant bath than directly into the dyebath. *Used at 2 to 4 % WOF*

POTASSIUM BITARTRATE

Cream of Tartare

CREAM OF TARTAR is an extra addition to an Alum dyebath which will soften the wool and help give brighter colour or change the shade (it will change the Fuchsia of cochineal to a pure red). Cream of Tartar works best with animal or protein fibres and isn't commonly used with plant or cellulose fibres. *Used at 5-6% WOF*

OAK GALLS

Gallnuts

OAK GALLS are a source of clear tannin. The gallnut is produced by oak trees as a reaction against parasitic wasps who deposit their eggs in small punctures they make on young branches. The tree excretes a tannin-rich substance that hardens and forms a gallnut. These are collected and ground or grated to be used in dyeing at your own discretion. This is a clear tannin.

TANNIC ACID

TANNIN is used to help natural dyes bond with Cellulose. Alum does not bond very well with cotton but does bond with Tannin. By treating the fibre with Tannin then Alum, the two combine on the fibre. This improves the depth of shade and fastness of natural dyes on Cellulose. *Extract used at 6-8% WOF*

Some natural dyes already contain Tannin which eliminates the need for it to be used when dyeing cotton. Fustic, Cutch, Myrobalan, Sumac and Pomegranate are 4 such dyes which will not need Tannin in your pre mordant. Tannins are either clear or yellow [which will add colour to your fibre]. Consider which one you use if you don't want your dye colour to be affected by the Tannin.

Individual dyes which contain Tannin

Myrobalan (yellow tannin)	15 – 20% with Alum
Cutch (red brown tannin)	15 – 30% with Alum
Sumac (clear tannin)	20% with Alum
Pomegranate (yellow tannin)	Use 5 – 8 % with Alum
Fustic (yellow tannin)	Use 4 – 6% with Alum
Brazilwood (yellow red tannin)	Use 4% with Alum

Kraftkolour, Unit 2/99 Heyington Ave, Thomastown, Victoria, Australia, 3074 Ph: 61 3 9465 4865 Web: Kraftkolour.net.au
Email: info@kraftkolour.com.au

MORDANTING fibre for NATURAL DYES

MORDANT RECIPES

EQUIPMENT


Dye Pot


Scales


Gloves


Stirring Spoon


Dust mask


Measuring Spoon


Jug

MORDANTING PROTEIN

Wool, silk or any animal fibre

INSTRUCTIONS ALUM MORDANT BATH

1) Weigh your dry fibre
2) Weigh some Alum Sulphate @ 15% weight of fibre
3) Dissolve the Alum in your measuring jug with hot water -make sure its thoroughly dissolved
4) Add your fibre to the dye pot and cover it with a generous quantity of warm water, add the dissolved mordant solution.
5) Slowly bring the dyebath to approx. 85 – 90C.
6) Stirring gently and regularly, keep the dyebath at temp for an hour then let it cool for 30mins
7) Remove the fibre from the Mordant bath, gently squeeze out excess water and hang to dry
8) Mordanted fibre/yarn or fabric can be stored indefinitely
9) The same method can be used for Iron and Copper but remember to be careful not to damage your fibre.

MORDANTING CELLULOSE

Cotton, Linen, Hemp, Viscose Rayon or any other plant fibre

For the best results – mordant twice – once with Tannin, then once with Alum at 15% WOF then again with Alum at 10% WOF. You can also do a **Tannin, Alum, Tannin mordant. The Tannin Bath is the first step.

INSTRUCTIONS FOR TANNIN BATH

1) Weigh the fibre
2) Some natural dyes do not need Tannin as they are Tannin rich. These can be used in combination with other natural dyes as a source of Tannin or used on their own with Alum. See chart above
3) Measure Tannin for WOF and dissolve in hot water
4) Fill the dyebath with enough hot water to cover the fibre and add the Tannin solution
5) Stir well, cover it and allow it to soak for 1 -2 hours, stirring occasionally – it doesn't need to boil
6) Remove fibre, spin out excess water or gently squeeze. Needs to be mordanted while it's still wet.

Kraftkolour, Unit 2/99 Heyington Ave, Thomastown, Victoria, Australia, 3074 Ph: 61 3 9465 4865 Web: Kraftkolour.net.au
Email: info@kraftkolour.com.au

ALUM MORDANT BATH

1. Make up a new dyebath with enough hot water to comfortably cover the fibre.
2. Add the wet fibre [treated with Tannin] to the dyebath
3. Weigh the Alum at 15% WOF, dissolve in hot water and add to the dyebath
4. Stir well, cover and allow to sit for 1 – 2 hours. It doesn't need to boil.
5. Rinse the fibre and remordant with Alum *or* repeat the Tannin bath again **[Tannin, Alum, Tannin].
6. The fibre is now ready to dye or dried and stored to be dyed later

COPPER MORDANT BATH

1. Use at 2 to 4% WOF Copper Sulphate
2. Dissolve in hot water
3. Make up enough hot water to cover the fibre
4. Add wet Tannin treated fibre
5. Heat to 80C and hold that temp for 30mins
6. Rinse well
7. DISPOSE OF MORDANT BATH WITH CARE

ALUMINIUM ACETATE MORDANT BATH

1. Fill the dyebath with enough hot water to comfortably cover the fibre
2. When the fibre has been treated with Tannin, add it to the dyebath
3. Stir well, cover the pot and leave it for 1 – 2 hours. It doesn't need to be boiled.
4. Using Calcium Carbonate helps fix the Alum Acetate to the fibre.
5. Make up a separate bath with 5gms per litre of Calcium Carbonate.
6. Soak the fibre in the chalk bath, squeeze out excess water.
7. Rinse the fibre and re mordant with Alum *or* repeat the Tannin bath again **[Tannin, Alum, Tannin]
8. The fibre is now ready to dye or dried and stored to be dyed later

IRON MORDANT BATH

1. Use 2% WOF Ferrous Sulfate
2. Dissolve in hot water
3. Make up dyebath with enough hot water to cover the fibre
4. Add wet Tannin treated fibre
5. Heat to 80C and hold at that temp for 30mins
6. Rinse well

MORDANTING IMPROVISATION

You can try using materials at hand to improvise mordants:

FERROUS SULPHATE	ALUMINIUM SULPHATE	COPPER SULPHATE
Rusty Nails	Aluminium saucepans	Copper wire
Old iron fencing wire		Copper pipe
Old corrugated iron		
Cast Iron cookpot		

RESOURCES:

Department of Carpet, Faculty of Art, University of Birjand, Iran
Natural Dyes in the United States – Rita J Adrosko
Maiwa Handprints Ltd
The Dyers Handbook – Dominique Cardon
Wild Colours – Jenny Dean

Kraftkolour, Unit 2/99 Heyington Ave, Thomastown, Victoria, Australia, 3074 Ph: 61 3 9465 4865 Web: Kraftkolour.net.au
Email: info@kraftkolour.com.au

KRAFTKOLOUR NATURAL DYES & EXTRACTS

ALKANET
Alkanna Tincoria

Dyer's alkanet is a purple dye found in the roots of plants which are part of the borage family. It grows wild thru central Europe, Asia and North Africa. Pigment from Alkanet is used in cosmetics & soaps as well as the natural dyers pot. The colourant from alkanet is not soluble in water so you need to soak the roots in alcohol (methylated spirits) for at least 2 days to extract the dye. Alkanet gives beautiful greys, lavenders and purples but has poor fastness.

MORDANTING : *refer Mordant Instructions*
PROTEIN: Use Alum at 15% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF *or* Aluminium Acetate at 8% WOF

DYEING ALKANET: Soak the alkanet in methylated spirits for several days then strain off the dye liquid and add it to the dyebath with enough warm water to cover the fibre. Add the mordanted fibre and slowly bring the dyebath to 60C for an hour or until all the dye has exhausted. It will have an odd smell and will be a greenish brown colour but don't be deterred!! Adding iron directly into the dyebath at 2% WOF increases the range of greys and grey violets.

ANNATTO
Annatto Nor bixin
Natural Orange 4.

Annatto is an orange-red food colouring from the seeds of the achiote tree (Bixa orellana) which is native to tropical regions of Mexico and Brazil. It's often used as a yellow or orange food colour, sometimes for its flavour and as a natural dye.
Mordanted with Alum or Copper, Annatto gives rich gold yellows.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF Use Copper at 10%
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF *or* Aluminium Acetate at 8% WOF

DYEING ANNATTO: Weigh your fibre. You will need 50 parts Annatto to 50 parts fibre.
Soak the Annatto overnight in hot water then strain through some muslin. Tie the muslin and return it to the dyebath. Make up the dyebath with enough warm water to cover the fibre then add the mordanted fibre. Bring up to 85C [do not boil]. The longer its in the dyebath, the stronger the colour.

AZTEC MARIGOLD EXTRACT
Tagetes erecta

This plant is also known as Mexican Marigold and is native to Mexico/South America. The plant grows to 50 - 100cm and was commonly used by the Aztecs for medicinal, cultural and decorative purposes. In Mexico, its flower, the 'cempasúchil' is called the *flor de muertos* (flower of the dead). Aztec Marigold has been used for medicinal purposes since prehistoric times.The Cherokee used it as a skin wash and for yellow dye. Today the flower petals are added to salads and the dried ground flower heads used as food colouring. Bright yellows, pale yellows, & lichen greens can be achieved as a natural dye. The extract is a significantly stronger than the petals.

MORDANTING: *refer Mordant Instructions*
PROTEIN: Use Alum at 15% WOF or Aluminium Acetate at 8% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF *or* Aluminium Acetate at 8% WOF

DYEING AZTEC MARIGOLD: Use only 2% of WOF
Dissolve extract in hot water. Make up dyebath with enough warm water to cover the fibre. Add dye

Instructions courtesy www.kraftkolour.net.au

solution to the dyebath with pre mordanted fibre. Bring slowly up to 85C. Do not boil. Maintain for 30 to 40 mins. Rinse well. This extract will also dye without mordanting.

BRAZILWOOD
Caesalpinia echinate

Also known as SAPPANWOOD – Eastern Brazilwood is a slow growing small tree found in South America. It grows up to 12mtrs high and has a large, rounded crown and thorny branches, leaves and fruit. Brazilwood is extremely drought tolerant. The pods and wood are used as a source of black and red dye. Because it is so hard & durable it's also used to make musical instruments, ship building and wood turning. Brazil Wood is it's common name but it's also known as Pernambuco, Pau de Pernambuco & Tupi Ibirapitang. The wood is very high in Tannin which eliminates the need for a Tannin pre mordant on cotton. You can use a dyebath several times and manipulate the dyebath PH [acid or alkaline] to vary the colour yield. Brazilwood is listed as an endangered species of the flora in Brazil.

MORDANTING: *refer Mordant Instructions*
PROTEIN: Use Alum at 15% WOF or Aluminium Acetate at 8% WOF
CELLULOSE: Use Alum at 15% WOF *or* Aluminium Acetate at 8% WOF

DYEING: Use 4 - 10% extract to WOF
Dissolve extract in hot water and add a little ground chalk which will brighten the colours. Make up dyebath with enough warm water to cover the fibre. Add dye solution to the dyebath with pre mordanted fibre. Bring slowly up to 85C. Do not boil. Maintain for 30 to 40 mins. Rinse well. Expect a strong crimson red with your first dyeing. This extract will dye without mordanting.

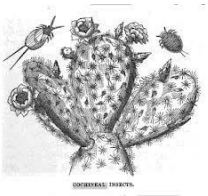
DYERS CHAMOMILE
Anthemis tinctoria

Dyers Chamomile is a daisy which belongs to the Anthemis tinctoria family. It grows throughout North America, Europe and the Himalaya. The dried flowers give anything from soft cream (without mordants) to warm, strong yellows and olive green. You can use the stalks and leaves for greener shades and dye it with Madder for tangerine orange colours Chamomile works best on protein fibres.

MORDANTING: *refer Mordant Instructions*
PROTEIN: Use Alum at 15% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF *or* Alum Acetate at 8% WOF

DYEING CHAMOMILE: Use 50 -100% dried chamomile flowers WOF. Steep the dried Chamomile flower heads in hot water for an hour. Strain and add to dyebath with fibre. Slowly bring the temperature up to about 80C and hold at temperature for about an hour to allow the dye to exhaust into the fibre. You can add Madder at this stage to change the yellow to orange. Dyers Chamomile is distinctive for its yellow petals and centre but normal chamomile which has white leaves and yellow centres will also dye fibre if Dyers Chamomile is unavailable.

COCHINEAL
BUGS & EXTRACT
Dactylopius coccus



COCHINEAL is derived from the dried bodies of the female of the Dactylopius coccus insect which live on the prickly pear cactus in Mexico, Central and South America and the Canary Islands. Most commercial Cochineal is exported from Peru and is used in food, cosmetics and drugs. As a natural dye Cochineal gives a huge range of reds, fuchsias, pink and purples. It is usually available as the dried insect or as a concentrated powder extract. It has excellent light and wash fastness.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF *or* Aluminium Acetate at 8%.

For Xmas reds add cream of tartar at 6% WOF to the alum mordant bath or the dyebath.
For purples add iron at 2-4% WOF to either the mordanting bath or the dye bath

DYEING WITH THE BUGS: Use 3-8% of dried insect WOF. Grind or crush the insects into a fine powder. Cover with water and boil for 30 minutes then strain the liquid and put to one side. Put the cochineal pulp back into the saucepan and boil again for another 30mins. Repeat this twice more.

The remaining pulp can be stored in water in a glass jar for several weeks and be reused.
Use the dye solution to make up your dyebath.
Cochineal is sensitive to acids and bases so part from using mordants, Cochineal red can be turned orange by adding white vinegar to the dyebath and fuchsia by adding soda ash. Be careful when you wash your fibre after dyeing that the soap you use is neutral PH or your dyeing will change colour.
If you're using Cochineal Extract, the dye can be dissolved in hot water and added directly to the dyebath. Follow the same mordanting & dyeing method [no need to grind or crush the powder]

CUTCH EXTRACT
Acacia Catechu

CUTCH extract is obtained by steeping the heartwood of the Acacia catechu tree in hot water to extract a syrupy liquid which is dried and ground into a powder. The Catechu tree grows in India, Burma, Indonesia, and Peru. It gives a variety of ochre browns, soft cinnamons, khaki and deep ochre yellow/oranges - all with excellent fastness. On its own without mordants Cutch gives cinnamon browns. With alum you'll get mid browns and rinsing with a little soda ash will redden the colour. Adding iron to the dyebath will give you chocolate browns.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF
CELLULOSE: Use Alum at 15% WOF
There is enough Tannin in Cutch so no extra required.

DYEING: Use 20-50% WOF to dye a medium depth of shade. Dissolve Cutch powder in boiling water and add to dyebath. Add dye solution and pre mordanted fibre to the dyebath and simmer gently for 2 hours. Cutch doesn't exhaust as well as some other dyes do so the dyebath can be used a few times for multiple depths of shade. Leaving the dyebath to cool and stand overnight will deepen the colour. Rinse with a weak vinegar bath to neutralise if you have used soda ash.

FUSTIC EXTRACT
Morus tinctoria

FUSTIC is the heartwood of a tree from the Mulberry family, Morus tinctoria. In the past Fustic is also known as Cuba wood or Yellow wood and was obtained in the West Indies , Central and South America. The best Fustic came from Cuba and Tampico. Fustic used to come as wood chips but is now more commonly available as liquid concentrate or powder extract. As time goes on it has become rarer which makes it one of the more costly natural dyes. Fustic gives a range of yellows without mordants, yellows & oranges with alum, lichen greens with iron but is also used as an under dye with Indigo for greens and teals. Fustic has high light and wash fastness but it can darken with exposure to sunlight. Using Fustic with Logwood promotes good black shades.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF or Iron at 2 – 4% WOF
CELLULOSE: No Tannin needed. Use Alum at 15% WOF *or* Aluminium Acetate at 8%.

DYEING FUSTIC: Use at 4 - 6% WOF. Fustic Extract can be added straight into the dyebath. Make sure that the dyebath temperature doesn't exceed 85C for wool, cotton & 70C for silk. If the temp goes too high for too long, the colour will turn to a dull brown. With the addition of copper at 2-4% WOF, Fustic yields clear, bright yellows. Overdyed with Madder or Cochineal, fustic will give reds. Overdyed with Logwood, it will give olive greens.

GARDENIA
Gardenia Crassicaulis

GARDENIA is a natural dye powder from gardenias which dyes a muted greenish blue. This dye is traditionally used as food colourant but our tests have found it dyes protein very successfully with good light and wash fastness. . For medium shades use 6% dye powder. This can be used with or without any mordant or dyebath additions.
MORDANTING: *refer mordant instructions*
PROTEIN ONLY
Use alum at 15% WOF

DYEING GARDENIA: Use at 2 -4 % WOF.
Dissolve the dye powder and add it to dyebath with the pre mordanted fibre. Gently simmer for 30 - 40 mins. The dye will exhaust onto the fibre.
**We do not recommend this dye for cotton.

Instructions courtesy www.kraftkolour.net.au

GOLDEN ROD
Solidago

GOLDEN ROD is a wildflower found in North America and Europe. Golden Rod belongs to the Aster family and is a perrenial plant found growing in open prairies, meadows and savannas. As a natural dye it's used for shades of warm yellows, golds and tans. Golden Rod is also used medicinally as a diuretic, to reduce pain and for eczema.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF and Iron at 2 – 4% WOF
CELLULOSE: No Tannin needed. Use Alum at 15% WOF *or* Alum Acetate at 8%.

DYEING GOLDEN ROD: Make a dye liquor by heating up a generous amount of flower heads for 15 mins at a gentle simmer. Don't boil. Strain the dye liquor into your dye pot and make it up with enough water to cover the fibre. Bring the dyebath up to a gentle simmer and leave the fibre there until you're happy with the colour. Golden Rod will give lovely colour without any mordants.

HENNA
Lawsonia inermis

HENNA powder is the ground, dried leaves of a shrub called Lawsonia inermis and gives red oranges, ochre browns and mid browns on protein fibres. It gives greenish yellows on cellulose. Henna bonds very well with protein, hence it's historically used to as a paint to dye skin, as a hair dye, for fingernails, leather, silk and wool. Henna is grown in the Middle East, North Africa and India. It has a sweet smelling white flower and is also known as Egyptian Privet. Although its known as red Henna the powder is quite green in colour and has a beautiful earthy smell. Mordanting does not change the colour significantly but improves its fastness. Using iron in the dyebath will shift the colour to brown.

MORDANTING: *refer mordant instructions*
PROTEIN: Use alum at 15% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF *or* Aluminium Acetate at 8% WOF

DYEING HENNA: Use at 20 -50% ground Henna WOF. Paste the dye powder with hot water and add directly to the dyebath. Simmer for 1 to 2 hours or until the desired colour has been reached. Adding 2-4% of Iron to the dyebath can slightly deepen and enrichen the brown colour.

HIMILAYAN RUBRUB
Rheum austral

HIMALAYAN RUBRUB is one of several species of Rhubarb grown in Tibet for its yellow dye. It grows to about 3 mtrs high and is also found in India, Pakistan, Nepal & Myanmar. It grows at very high altitudes and has dark red purple flowers and large leaves. The dye matter is extracted from its woody stems and roots and gives strong yellows, gold yellow and oranges. Rubrub powder is made with the root and stalks of the plant.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF

DYEING RUBRUB: Use at 10 – 30% WOF. Dissolve the Rubrub powder in hot water. Add to dye pot with pre mordanted fibre and simmer for 60mins. Leave to soak overnight to build up the depth of colour. Adding a little soda ash will turn the dye to red & coral pinks. Adding Iron will turn the dye olive green.

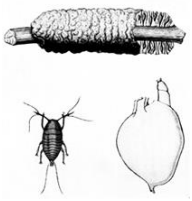
KAMALA
Mallotus Philippinensis

KAMALA is obtained from the fruit of Mallotus philippinensis, a small tropical evergreen tree found in India. It's also known as the monkey-face tree (because monkeys are said to rub their faces in the fruit). Kamala gives gold yellows to tangerines. It has poor light fastness on cotton but gives good deep shades on protein fibres. If you add a little iron to the dye bath it yields deep moss greens. Over or under dyed with indigo it produces forest greens. (you may have dye left over in the dyebath for further dyeing)

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum 15% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF or Aluminium Acetate at 8% WOF

DYEING KAMALA: Use at 7% WOF. Kamala isn't very soluble in water, so you need to extract the dye from the powder before you start. You can do this with alcohol or with Soda Ash. To extract with alcohol, soak the powder in enough Methylated Spirits to cover the powder for at least 2 hours then add this to the dyebath. Alternatively mix the powder with half its weight of soda ash in a decent amount of water. Let this stand and stir occasionally for 2 hours then add this directly to the dyebath. After dyeing rinse your fibre with vinegar solution and then with water.

LAC EXTRACT
Kerria lacca



LAC is a dye extract from the scale insect Kerria lacca which are found in India, south east Asia, Nepal, Burma, Bhutan and south China. Female Lac insects invade host trees (fig and acacia) and secrete resin which contains a red dye. The resin is removed from the tree and used as shellac while the dye is removed from the resin. Though similar to Cochineal, Lac extract gives softer and more muted crimsons, burgundy reds and deep purples. Lac dye has high light and wash fastness on silk and wool but less on cellulose

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF, Iron at 15% WOF for greys & Copper at 15% WOF for purples
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF *or* Aluminium Acetate at 8%

DYEING LAC: Use at 5 – 15% WOF. Dissolve the Lac in hot water and simmer with pre mordanted fibre for 45 minutes. If you leave it over night to brew you will get deeper richer colours. With the addition of cream of tartar at 6% WOF you will get a lovely red. Adding some Soda Ash will change the colour to plum purples and the addition of Iron at 1-2% WOF will give black/purples

---

LOGWOOD EXTRACT
Hematoxylon campechianum

LOGWOOD is the heartwood of the logwood tree, Haematoxylon campechianum which grows in Mexico, South America, Brazil, Madagascar and India. The dye matter found in Logwood is called Hematine. Logwood comes as LOGWOOD CHIPS or LOGWOOD EXTRACT.

Mordanting with Alum Logwood gives deep rich red, violets and purple blues. Mordanting with Iron it will yield blacks and browns.
Logwood has good wash fastness but moderate lightfastness – (iron improves the lightfastness).
Logwood Extract is much stronger than the chips and is only used at 1% WOF (Weight of Fibre).

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF for blacks, Iron at 15% WOF for greys & Copper at 15% WOF for purples.
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF *or* Aluminium Acetate at 8% WOF

DYEING LOGWOOD EXTRACT: Use at 0.5 - 1% WOF directly into the dyebath. Don't exceed a dying temperature over 80C.
DYEING LOGWOOD CHIPS: Use 15-20% WOF for a medium depth of shade. Pour enough boiling water over the logwood chips to make a dyebath and soak overnight. Pour off this liquid and use for your first dyebath. Simmer fibres for about one hour, keeping temperature of dyebath between 75-85C (170-180ºF). If a darker colour is required leave fibres in dyebath overnight. The logwood chips can be soaked again and this can be used for lighter shades. Logwood gives best results in slightly hard water. Adding finely ground chalk brightens the colour, especially if there is no Lime in the local water. Cream of Tartar can be added (at approximately 6% WOF) to push Logwood to a purple-navy, adding Osage or Fustic gives grey-greens, Cochineal gives purples, Cutch for coffee browns, Indigo for navy's, greys to blacks are made with the addition of iron.
Using Logwood Extract – Use at 1% WOF directly into the dyebath for medium shades.

MADDER
Rubia Cordifolia
Rubia Tinctorum
Madder Root Powder

MADDER was historically of great importance as a source of red dye. It was largely cultivated throughout India, South East Asia, Turkey, Europe, China Africa the Middle East, Australia and Japan. It was used for the production of Turkey Red on cotton and dyeing reds on wool. Madder is the ground root of Rubia Cordifolia & Rubia Tinctorum. This is also available as dried roots. The chief varieties recorded are Dutch, Alsation, Avignon and Turkish. The main colouring matters found in Madder are *alizarine, munjistin, purpurin, xanthin and chlorogenin*. Madder grows as a semi prostrate climbing plant. It was used on its own but historically also used with Woad as a fermentation agent.

Instructions courtesy www.kraftkolour.net.au

Dyed without a mordant Madder gives gold yellow. Mordanted with Alum it gives orange reds and mordanted with Iron mustard yellows.
Mordanted with both mordants combined you'll get brick red, mulberry, crimson, purple, rust browns and deep red blacks. To get clear reds the dyebath must be alkaline. You can also use the leafy part of the plant for more subtle colours.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF, Iron at 15%, Copper at 15% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF

DYEING WITH MADDER ROOT POWDER or **MADDER ROOTS:** Use 30 – 100% WOF Madder Root. Make a dyebath up and add the roots or powder to the pot. Madder develops to its deepest and richest reds in hard water – water containing calcium and magnesium salts is ideal. If the water is soft add chalk Gradually bring to just under the boil and simmer for an hour to extract the dye. Allow the dyebath to cool and add fibres. Don't allow the dyebath to go above 70C or the colours will be dull and brown. Leave the plant material in the dyebath and continue cooking for another 1-2 hours. The madder dyebath can be reused two or three times for lighter shades. There are hundreds of dye recipes for Madder including one which uses iron as a mordant to start then alkaline added to the dyebath to produce rich Aubergine Purple. By adding a little Sumac to the bath, you'll get better exhaustion of the dye matter.
RUBIA TINCTORIUM:
Main colouring matter is Alizarin for Turkey red – do not dye above 70C [use as above]
RUBIA CORDIFOLIA:
Main colouring matter is Minjistin for Indian reds
Cordifolia is not as affected by heat.

MARIGOLD or CALENDULA
Tagetes Species

MARIGOLD (Also known as CALENDULA) This is a small bushy shrub which is grown as a decorative garden plant, for cut flowers and for its wonderful healing properties in creams and ointments to soothe burns, wounds and inflammation. Marigold is grown worldwide. The dye comes from the flowers which can be dried and stored or used fresh. The fresh flowers produce rich vibrant yellows, green yellows & oranges with the dried flowers giving paler colours.. Marigold has moderate light and wash fastness. For good colour depth use 20 -30% dried marigold to WOF

MORDANTING: PROTEIN: Use Alum at 15% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF *or* Aluminium Acetate at 8% WOF

DYEING MARIGOLD: Use at 20 -30% dried Marigold WOF. Add the dried flowers/ petals to the dyebath, cover with water and simmer for at least 30mins to extract the dye. Strain the dye liquid and cool before adding to the dye pot with the pre mordanted fibre, simmer for 30mins or until you are happy with depth of shade**.** Leaving the fibre in the dyebath will give you deeper shades. By adding 2% iron WOF to the dyebath you'll get some lovely, muted greens. Adding a little copper will give you soft greeny yellows.

MYROBALAN DARK
MYROBALAN LIGHT
Terminalia chebula

MYROBALAN comes from the ground nuts of the Terminalia chebula tree which grows in Nepal, India, Sri Lanka, Burma, Thailand, Indo China and south China. You can use Myrobalan as both a dye and mordant as it contains high levels of Tannin. As a dye you will get lovely soft yellows and used as a pre dye with Indigo, teal greens. When used as a tannin mordant Myrobalan requires 15-20% WOF. Myrobalan dark will give a darker background colour on your fibre than the Myrobalan Light.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF
CELLULOSE: Use alum at 15% WOF
There's enough Tannin in Myrobalan without using any extra tannin.

DYEING: Use at 20-30% WOF. Dissolve Myrobalan powder and add to the dyebath. Bring dyebath up to approx. 55C and the add fibre. Continue heating bath to simmer just under the boil and hold temp for 1 hour. If you add Iron 2 – 4 % WOF to the dyebath you will get soft lichen greens to grey greens.

ONION SKINS
Allium cepa

RED ONION SKINS Dried onion skins give a lovely reddish brown on Protein and a neutral pale brown on cellulose.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15%

DYEING: Use at 20% WOF. Simmer skins for 1 hour, remove the skins then add the fibre, simmer for 1 hour then leave to stand overnight.

OSAGE ORANGE
Maclura pomifera

OSAGE ORANGE is the wood chips, shavings or sawdust from the Maclura Pomifera tree and gives similar dyeing results to Fustic. The tree is growing wild throughout the south and central United States. You will get clear bright yellows, soft yellows, green yellows and mossy greens with alum and mossy greens with iron. It has very high light and wash fastness.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF *or* Alum Acetate at 8% WOF

DYEING: Use at 20 – 30% WOF. Soak the wood chips, shavings or sawdust in water overnight. Bring to the boil and cook for 1 hour. Strain off the dye liquid and use this to when you make up your dyebath. Add the fibre to the dyebath and simmer gently for 45 – 60 mins. If you add a little copper, it will give you brighter yellows. If you add iron, it will give you mossy olive greens. You can overdye with Indigo for bright greens. Extract more dye from the used shavings by boiling them again or you can dry these for later use.

POMEGRANATE
Punica granatum

POMEGRANATE is the extract or a powder from the rinds of Punica granatum which is commonly grown in Asia and India. You can use the skin or the whole fruit as a source of dye. It's very high in Tannin so it can also be used as a mordant with Alum on cotton. It also helps to increase light and wash fastness of any dye with which it's mixed. Pomegranate dyes bright and soft yellows to greenish yellows. Without a mordant it dyes a warm beige. Use iron in the dyebath for soft greys, black and mossy greens. Mixed with Turmeric it will brighten its yellows and make them more lightfast.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF
CELLULOSE: Use Alum at 15% WOF no Tannin needed

DYEING: Use the extract at 5 - 8% WOF for medium shades. Use the powder at 15 -20%. Mix the powder or extract with hot water then add fibre. Simmer for 60mins. If you're using the fruit or skins, dry them first then boil for 45 to 60 mins then strain off the dye liquid. Add this to the dyebath and simmer for 60mins remove and rinse. Leave overnight or for a few days for heavier shades

---

PRANGOS
Prangos ferulacea

The genus Prangos, which belongs to the Apiaceae family of plants, is a fragrant, perennial herb which grows to up to 2m tall. It is also called Jashir. Found in the Mediterranean and Middle East [including Iran], the plant is predominantly dried for use as animal fodder. In Iran it's also used in the preparation of cheese. As a natural dye its properties vary depending on where it has been growing and the different growing conditions. As a natural dye it yields ochre yellows, tans and browns. It's been widely used in Iran to dye carpet wool for rug making and is best used on protein rather than cellulose.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 10% WOF, Iron at 10% WOF & Copper at 10% WOF

DYEING: To extract the dye from Prangos, boil the leaves and stems for at least 60mins. Cool the solution to room temperature and pass it through a filter. Make up a dyebath with warm water, add the dye solution and pre mordanted fibre. Gradually raise the temperature of the dye bath to 90C. Do not boil. The longer the dyeing time, the stronger the colour

---

Instructions courtesy www.kraftkolour.net.au

RED SANDALWOOD
Pterocarpus santalinus

RED SANDALWOOD is a small tree endemic to India which grows to 5-8 meters in height and has a dark greyish bark. The timber is in high demand in East Asian countries for carvings, furniture, poles, and house posts. The rare "wavy" grain variant is highly valued in Japan for its acoustic properties and is used to make musical instruments. For the natural dyer, the timber can be used by extracting the 'santalin,'which is the red pigment used as a dye. It will give a range of pinks, peach, copper, browns and terra cotta but has only moderate fastness. Red Sandalwood's status is listed as 'endangered' on the IUCN Red list.
[The IUCN Red List of Threatened Species™ is the world's most comprehensive inventory of the global conservation status of plant and animal species]

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF or Iron 10% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF *or* Alum Acetate at 8% WOF

DYEING:
Red Sandalwood gives a slightly richer and stronger result on protein fibres and paler gentler colour on cellulose fibres. It's not soluble in water so you will need soak it in Methylated Spirits overnight. Place the powder in a muslin bag, tie with string and submerge in alcohol. Cover to avoid evaporation. The dye solution extracted is added to the dye bath and the dye in the muslin bag saved to extract more dye. Add pre mordanted fibre to the dye bath and bring slowly to a gentle simmer for 40mins. Rinse well after dyeing.

ROSEHIP
Rosa Rugosa

ROSEHIPS (Dog Wood) will dye tans to rosy pinks using iron as a mordant. First soak the whole Rose hips or the powder in hot water for several hours or overnight to soften. Bring to a simmer for 2 hours. After soaking the Rose Hips, add the pre mordanted fibre to the dyebath and simmer for a further 2 hours.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF OR Iron at 10% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF *or* Alum Acetate at 8% WOF

SAFFLOWER
Carthemus tinctorius

SAFFLOWER is an annual thistle and is most commonly known for its cooking oil and seeds. Its petals can also be used for dyeing yellows, pinks, scarlet and coral reds. Soak the petals in water for a few hours to extract the dye. This will dye any pre mordanted fibre yellow. Changing the PH of the dyebath will give reds and pinks.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF or Iron 10% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF *or* Alum Acetate at 8% WOF

DYEING: Use at 100-200% WOF. Extract the dye by placing the soaked petals in a muslin bag. Squeeze the bag and save this extract for dyeing. Repeat again a few times soaking in fresh water each time. Combine the dye liquor from each soaking, make it up in a dye bath and add pre mordanted fibre. Simmer for 40 – 60 mins.
DYEING PINKS ON CELLULOSE: Use 100 – 200% WOF. Using the pre soaked petals in the muslin bag, make up a fresh dyebath with cold water, suspend the bag in the dye pot. Add some Soda Ash to the dye bath until it reaches pH 11. [you'll need some pH papers to test this]. After removing the bag adjust to pH 6 using White Vinegar.
The dyebath should now be bright red 😊 Add some un mordanted Cellulose to the dyebath and leave overnight. This method isn't suitable for wool.

SAFFRON
Crocus sativus
Genus Iridaceae

SAFFRON is a natural yellow dye derived from the saffron crocus. Saffron is used as luminous yellow-orange colouring in foods and is widely used in Indian, Persian, European, Arab, and Turkish cuisines. Confectioneries and liquors also often include saffron. Saffron used as a fabric dye, gives bright buttery yellows.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF *or* Alum Acetate at 8% WOF

DYEING SAFFRON: Use 3% WOF for medium shades
Dissolve powder in hot water and add to dyebath with fibre. Simmer gently for 30mins or until desired shade

Instructions courtesy www.kraftkolour.net.au

is achieved. Use alum mordant at 15% WOF for protein fibres. Not recommended for cellulose.

SUMAC
Anacardiaceae
genus Rhus Sapindales

SUMAC is a culinary spice which is made from the dried and ground berries of the wild sumac flower. It has a sour, acidic flavour reminiscent of lemon juice. This fragrant spice is used to brighten up dry rubs, spice blends like za'atar, and dressings. It is also used in natural dyeing as a Tannin. Sumac can be used as an alternative to Tannin but also dyes browns and blacks. No mordanting required as a dye, use at 20% WOF.

TURMERIC
Curcuma longa

TURMERIC is a rhizomatous herbaceous perennial plant of the ginger family Zingiberaceae. It's native to tropical South Asia and needs high temperatures and rainfall to thrive. Plants are gathered annually for their rhizomes and propagated from some of those rhizomes in the following season. Turmeric will give bright yellows but has poor lightfastness. It's still used extensively to dye Sari fabric in India. ** Turmeric will stain your hands bright yellow so wear gloves!!!

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF
CELLULOSE: Not recommended

DYEING: Use 15% WOF. Make up a fresh dye bath with warm water. Add Turmeric powder and simmer for 40mins. Cool the dyebath then add pre mordanted fibre and continue to simmer for 15 – 20 mins.

WALNUT POWDER
Juglans nigra & regia

WALNUT HULLS POWDER from **Juglans nigra** (Black Walnut) comes from hardwood tree native to eastern North America and belongs to the hickory family. The hulls, bark and leaves are traditionally used to treat skin conditions such as eczema and psoriasis but they can also be used as a natural dye yielding subtle shades of almost black, grey, browns, lichen yellows and ecru. Walnut doesn't need a Mordant and will dye deep dark greys on its own. Using pre mordanted fabric you will get a range of lichens, brown and deep grey browns. Used with Madder it will give you mahogany reds. The Peel powder from **Juglans regia or Common Walnut**, produces a range of beige and brown colours and is dyed in the same way. Both dyes have very good light and wash fastness.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF OR Iron at 10% WOF
CELLULOSE: Alum at 15% WOF *or* Alum Acetate at 8% WOF [there's enough Tannin in walnut without using it in the pre mordant]

DYEING: Use powder at 20 – 30% WOF. Start dyebath with warm water, add pre mordanted fibre and bring slowly to a gentle simmer for 45 mins.

WELD
Reseda Luteola

DYERS WELD is also known as dyers rocket, dyers weed, mignonette and yellow wee and is a native of Eurasia. It's also found in North America. The plant is rich in Luteolin which produces a bright, rich, colourfast yellow dye and great bright greens when used with Woad or Indigo.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF
CELLULOSE: Use Tannin at 8% WOF then Alum at 15% WOF *or* Alum Acetate at 8% WOF

DYEING WITH DRIED PLANT: Use 30 – 50% WOF. Cover the leaves in boiling water and leave overnight. Strain the extracted dye into a dye bath, add pre mordanted fibre and simmer at 80C for 60mins. Overdye Indigo with Weld for greens. Adding some chalk to the dyebath brightens the colour.

WHITE MULBERRY LEAF EXTRACT
Leafy Green

WHITE MULBERRY is a fast-growing, small to medium-sized tree which grows to 10–20 mtrs tall. It's generally a short-lived with a lifespan comparable to that of humans, although there are some specimens known to be over 250 years old. **LEAFY GREEN** dye is derived from the secretions of the silk worms which feed on

the leaves and is rich in Chlorophyllin which is responsible for giving the green colour to the leaves.

The green obtained from chlorophyllin is a soft, bluish green colour. It has best fastness on Protein Fibres

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF
CELLULOSE: Not recommended

DYEING: Use 1 – 5% WOF. Dissolve the powder in hot water and add to the dye bath. Raise the temperature to 60C and dye for 45 mins

---

WOAD
Isatis tinctoria

WOAD was extensively used before East Indian Indigo was introduced by the Dutch into Europe in the late 16th century. It was the first blue dyestuff to be used but by 1700 AD, Indigo had become more and more popular. Indigo and Woad both contain blue colouring. In Indigo its known as Indigotin or Indican. In Woad its known as Isatan. Indigo has a higher concentration of Indigotin and is stronger and less temperamental. Woad continued to be used with Indigo to promote better fermentation and brighter blues.
The Woad vat is essentially the same as an Indigo vat using a fermentation process to extract the dye which is then reduced to its soluble form. Great skill was needed to control the degree of fermentation as Woad varies according to the quality differences of the plant used. Master dyers even used their sense of smell to detect changes in the fermentation. Expect to have unexpected results with some trial and error. The recipe outlined here uses powdered Woad leaves and is based on a chemical vat method. There are several other types of Woad Vats such as Urine, Lime Zinc, Fructose and Bran /Madder Fermentation. The recipe outlined here is one we've perfected at Kraftkolour and should give you excellent results.

PREPARING THE WOAD:
The Woad used for this recipe is simply dried, powdered leaves. We have found that by allowing the Woad to ferment you can extract the dye – which will just take some time, patience and the instincts of a dyer.

TO START: Using 50gms Woad Powder in a large plastic or stainless steel bowl, pour over 1 litre of boiling water. Stir well and allow it to sit uncovered for 3 days in a warm place, stirring 2 – 3 times a day to oxygenate the water. If you can smell the Indigotin as it is released into the solution this is your first step towards becoming a woad dyer.
After 3 days, using very fine fabric supported by a sieve [Habotai silk works well], strain the liquid into another bowl to separate the plant matter from the Indigotin. Set the strained Woad sludge aside – this can be dried and you'll be able to repeat this process to extract more Indigotin.

NEXT:
Set aside the strained liquid for another 3 - 5 days during which it will change from a murky brown/green to blue, develop more strength and continue to ferment. [Fig 1] This will become your Woad Vat. You should see a thin layer of bronzy 'flower' on the surface much the same as an Indigo Vat. Stir 1 – 2 times a day to introduce fresh oxygen into the vat [this aids fermentation]

USING THE WOAD VAT

Figure 1

To use it you will need to warm the dyebath and add some chemicals to reduce the Indigotin toits soluble form. Raise the temperature of the dyebath with 1 litre of boiling water or add 1ltr water and heat it - do not go over 50C. Stir in 20 - 40gms Soda Ash [Sodium Carbonate], make sure its dissolved then sprinkle 20 - 40gms Hydros ST [Sodium Hydrosulphite 50%] onto the surface. Stir well and allow it to sit for 5 – 10 minutes
VATTING OUT: The dye will gradually 'vat out' and it will become a clear, yellowy green. [Fig 2] The flower can sometimes increase but not always. There may still be some undissolved plant matter in the vat but this will not affect your dyeing.

Figure 2

Once the Indigotin is vatted out and the dyebath is a clear yellowy green it's ready to use.
Submerge clean, washed fabric or fibre into the vat and stir gently for even dyeings. At this stage avoid excessive stirring – this will affect the solubility of the Indigotin. The longer it remains in the vat, the heavier the shades. For pale blues: dye for 5 mins, medium blues: 10 to 15 mins and dark blues dye longer. By doing multiple dippings the colour will build to stronger and stronger shades. When you are satisfied with the depth of colour, remove from the dyebath, squeeze out excess dye and expose it to the air to oxidise. In the dyebath the fabric will be a clear green but once removed from the vat it will oxidise and give you Indigo blue [Fig 3].

If you are doing multiple dippings, squeeze out excess dye solution and oxidise before returning it to the dyebath.

TO FINISH:

Figure 3

Once the fabric has thoroughly oxidised, wash in warm water using a mild washing powder and rinse until water runs clear. Woad dyeings don't tend to lose much colour in the rinse. Continue to use the Woad Vat until the Indigotin is exhausted It can also be kept covered for later use, refreshed by warming to 50C then sprinkled with additional Hydros to re - vat the dyebath. *Figure 4* – fully oxidised dried Fabric.

Figure 4

.

Resources:
The Dyers Handbook - *Dominique Cardon*
Application of Dyestuffs – *Matthews*
Maiwa Dyes
A Dyers Manual – *Jill Goodwin*
A Weavers Garden
A Dyers Garden - *Rita Buchanan*
Wild Colour – *Jenny Dean*
Natural Dyes in the United States – *Rita J. Adrosko*

HIBISCUS
Rosa Sinensis

HIBISCUS flowers and leaves can both be used as to produce a red dye. In China it's used for dyeing hair and in India the flowers are crushed and used as a purple dye. The flowers need to be collected and simmered at 80C in water for 30 – 40mins to extract the dye. Avoid going above 80C – the dye will turn brown. The flowers can also be picked, dried and stored for later use. Strain the dye liquid to remove the flowers [you can also leave them in the dye bath]. Fibre should be pre mordanted before dyeing. Using Alum you will get a lovely plum/purple.

MORDANTING: *refer mordant instructions*
PROTEIN: Use Alum at 15% WOF
CELLULOSE: Use Tannin at 8% WOF then
Alum at 15% WOF *or* Aluminium Acetate at 8%.

DYEING: Use 10 - 20% WOF. Add the strained liquid to a warm dyebath with pre mordanted fibre. Bring to a gentle simmer – the longer the fibre is in the dyebath, the deeper the colour. The stronger the extracted dye liquid is, the stronger the colour. If you leave the leave the flowers in the dyebath, you will get patches of darker colour.
