



# VKR TEX - Tutorials

Manufacture of All Kinds of Auto loom Fabrics and Natural Dye Fabrics.

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## Madder

### Madder



Common Madder (*Rubia tinctorum*)

### Scientific classification

Kingdom: Plantae  
Division: Magnoliophyta  
Class: Magnoliopsida  
Order: Gentianales  
Family: Rubiaceae  
Genus: ***Rubia***  
L.

### Species

See text.

**Madder** is the common name of the plant genus *Rubia*, the type genus of the madder family Rubiaceae.

The genus contains about 60 species of perennial scrambling or climbing herbs and sub-shrubs native to the Old World, Africa, temperate Asia and America.

The best known species are Common Madder (*Rubia tinctorum*), Wild Madder (*Rubia peregrina*), and Indian Madder (*Rubia cordifolia*).

The Common Madder can grow to 1.5 m in height. The evergreen leaves are 5-10 cm long and 2-3 cm broad, produced in whorls of 4-7 starlike around the central stem. It climbs with tiny hooks at the leaves and stems. The flowers are small (3-5 mm across), with five pale yellow petals, in dense racemes, and appear from June to August, followed by small (4-6 mm diameter) red to black berries. The roots can be over a metre long, up to 12 mm thick and the source of a red dye known as rose madder. It prefers loamy soils with a constant level of moisture.

Madders are used as food plants for the larvae of some Lepidoptera species including Hummingbird hawk moth.

### Species

- *Rubia akane*
- *Rubia alaica* Pachom.
- *Rubia angustifolia* L.
  - *Rubia angustifolia* ssp. *angustifolia*
  - *Rubia angustifolia* ssp. *caespitosa*
- *Rubia chinensis* Regel & Maack
- *Rubia chitralensis* Ehrend.
- *Rubia cordata* Thunb
- *Rubia cordifolia* L. : Indian Madder
- *Rubia cretacea* Pojark.
- *Rubia deserticola* Pojark.
- *Rubia dolichophylla* Schrenk
- *Rubia florida* Boiss.
- *Rubia fruticosa*
- *Rubia jesoensis* (Miq.) Miyabe & Miyake
- *Rubia komarovii* Pojark.
- *Rubia krascheninnikovii* Pojark.
- *Rubia laevissima* Tscherneva
- *Rubia laxiflora* Gontsch.
- *Rubia pavlovii* Bajtenov & Myrz.
- *Rubia peregrina* L. : Wild Madder
- *Rubia rechingeri* Ehrend.
- *Rubia regelii* Pojark.
- *Rubia reznitzenkoana* Litv.
- *Rubia rigidifolia* Pojark.
- *Rubia schugnanica* B.Fedtsch. ex Pojark.
- *Rubia sikkimensis* Kurz
- *Rubia syrticola* Miq.
- *Rubia tatarica* (Trevir.) F.Schmidt
- *Rubia tibetica* Hook.f.
- *Rubia tinctorum* L. : Common Madder
- *Rubia transcaucasica* Grossh.
- *Rubia yunnanensis* (Franch. ex Diels) Diels

## Uses

It has been used since ancient times as a vegetable red dye for leather, wool, cotton and silk. For dye production, the roots are harvested in the first year. The outer brown layer gives the common variety of the dye, the lower yellow layer the refined variety. The dye is fixed to the cloth with help of a mordant, most commonly alum. Madder can be fermented for dyeing as well (Fleurs de garance). In France, the remains were used to produce a spirit as well.

The roots contain the acid ruberthyrin. By drying, fermenting or a treatment with acids, this is changed to sugar, alizarin and purpurin. Purpurin is normally not coloured, but is red when dissolved in alkaline solutions. Mixed with clay and treated with alum and ammonia, it gives a brilliant red colourant (madder lake).



Common Madder (*Rubia tinctorum*), from Thomé, *Flora von Deutschland, Österreich und der Schweiz* 1885.

The pulverised roots can be dissolved in sulfuric acid, which leaves a dye called garance (the French name for madder) after drying. Another method of increasing the yield consisted of dissolving the roots in sulfuric acid after they had been used for dyeing. This produces a dye called garanceux. By treating the pulverized roots with alcohol, colorin was produced. It contained 40-50 times the amount of alizarin of the roots.

The chemical name for the pigment is alizarin, of the anthraquinone-group. In 1869, the German chemists Graebe and Liebermann synthesised artificial alizarin, which was produced industrially from 1871 onwards, which effectively put an end to the cultivation of madder. In the 20th century, madder was only grown in some areas of France.

## History

Dioscorides and Pliny the Elder (*De Re Natura*) mention the plant (*Rubia passiva*). In Viking age levels of York, remains of both woad and madder have been excavated. The oldest textiles dyed with madder come from the grave of the Merovingian queen Arnegundis in St. Denis near Paris (between 565 and 570 AD). In the "Capitulare de villis" of Charlemagne, madder is mentioned as "warantiam". The herbal of Hildegard of Bingen mentions the plant as well. The red coats of the British Redcoats were dyed with madder.

According to Culpeper's herbal, the plant is ruled by Mars and has an opening quality, and will bind and strengthen afterwards. It was used in the treatment of jaundice, obstruction of the spleen, melancholy, palsy, haemorrhoids,

sciatica, and of bruises. The root should be boiled in wine, and sugar or honey added. The seed of madder, drunk with vinegar and honey is used for the swelling of the spleen. Leaves and stems are used when the monthly female menstrual bleeding is late. Leaves and roots are squashed and put on freckles and other discolorations of the skin.