

## **Madder roots - 37199 Madder roots whole, 37201 Madder roots ground**

English Madder root, French Racine de garance

Madder roots are the roots of the dyer's madder, also called dyer's root or dyer's red. Dyer's madder *Rubia tinctorium* (Rubiaceae family) is an outwardly similar herbaceous plant to the bedstraw (popularly known as "burdock"), about half a meter tall. It is found on calcareous soils in Asia Minor and the Mediterranean, in China and Japan, as well as in Mexico and South America. In countries such as Germany, Holland, Hungary and France, dyer's madder was not native but was cultivated. Near Avignon, along the Sorgue River, there were dry marshes called paluds. The madder from this area was the most sought after European at the end of the 18th century and was traded under the name "Palud" or "Paludalizari". The product called Lizari or Alizari usually came to Europe from the Orient and was considered the best variety. Since the coloring ingredients, however, cultivation has declined sharply.

The root is covered on the outside with a thin, slightly sloping layer of cork, under which lies a dark red or black-brown colored bark. The wood of the madder root has a yellow color; only after drying does a red dye appear in the wood.

Madder is available in two different qualities: the so-called "deprived" madder is the dried root freed from fibers by threshing. The "unthreshed" madder has not been threshed and is of poorer quality due to the greater proportion of fibers.

The threshing waste is also called gauze or madder bran. The yellow pigment contained in the moist wood is the sugar-containing ruberythric acid. During drying, fermentation takes place in which the ruberythric acid is split into alizarin and the sugar residue. Storage for two to three years does not harm the madder root, but can even increase the alizarin content.

Only after five or six years of storage does the quality deteriorate again. Both ruberythric acid and alizarin chemically belong to the anthraquinone group. In addition to these two ingredients, madder root contains a great many other anthraquinones, such as purpurin, pseudopurpurin, munjistin, rubiadin and rubianin or christofin. Before the red alizarin dye could be produced synthetically, the madder root was processed in various ways. If the roots are macerated with acidified water and followed by fermentation with yeast, the so-called "madder flowers" ("fleurs de garance") are obtained. "Azalea" is an extract of madder made with wood alcohol (methanol) and is nothing other than raw alizarin. If madder flowers are boiled with sulfuric acid, madder charcoal is obtained, which is also called "garancine". "Kolorin" is an alcoholic extract of garancine. This and other preparations from madder roots facilitated the work of dyers and were also used in calico printing.

Recipe from India for dyeing silk with madder:

To obtain a durable, lightfast dyeing on textile materials with natural dyes, pretreatment of the dyeing material with mordants is absolutely necessary. Very few natural dyes can provide durable, lightfast dyeing without a mordanting process. The most important mordant for silk is alum. The mordant enables the permanent bonding of the dye to the fiber. For 100 grams of silk, 15 to 25 grams of alum are needed. This quantity is then added to a small amount of water at 30° to 25° C so that the silk can be soaked overnight, well covered. Afterwards the silk is rinsed and dried only once. However, the silk must always be introduced moist into the dye liquor for dyeing.

With the dyeing extract of madder with the recipe of 70° C, a pure madder red is obtained. Further boiling of the madder roots in the preparation of the dyeing liquor dissolves the brown dyeing substances, and a very durable brown red is obtained. If lime-containing water is used for dyeing, the dyed silk fabrics show a slight blue tint. With lime-free water and the addition of 20 to 30 grams of chalk, the reds become more vivid and bluish. 50 grams of wheat bran soaked together with madder dyeing material achieves a bright bright intense red. If the used dye liquor of the basic recipe is used for further dyeing, the silk fabric becomes peachy pink.

The madder roots 37201 are not treated with pesticides or chemicals during cultivation.