

## About Cissus Quadrangularis (Bonton Capsule)



### Published Report Summary

#### **Cissus quadrangularis – 2400 mg. per capsule**

**Cissus quadrangularis** is an indigenous medicinal plant of India. The use of this plant by the common folk for promoting fracture healing process is an old practice. It has been prescribed in ancient Ayurvedic texts by *Bhava Prakash* and *Chakra Dutta* as a general tonic especially for the fractured patient. Since then it has been in extensive use by bone setters both for external application and as an internal medicine to be taken with milk. The stem of *Cissus quadrangularis* is also reputed in Ayurveda as alterative, anthelmintic, dyspeptic, digestive, tonic, analgesic in eye and ear diseases, in the treatment of irregular menstruation and asthma, and in complaints of the back and spine. Scientific studies have revealed the *Cissus* extract to possess cardiogenic and androgenic property.

*Cissus quadrangularis* contains high amount of vitamin C, carotene A, anabolic steroidal substances and calcium. These anabolic steroidal principles from *Cissus quadrangularis* showed a marked influence in the rate of fracture- healing by influencing early regeneration of all connective tissues of mesenchyma origin, namely the fibroblasts, the chondroblasts and osteoblasts involved in the healing and quicker mineralization of the callus. It has greater impact on osteoblastic proliferation than other cellular responses.

*Cissus quadrangularis* causes less amount of tissue reaction in the fractured region leading to optimum decalcification in the early stage with minimum of callus formation. Hence deposition of calcium is just enough to join the two broken segments of bone so that its remodeling takes much faster. This early completion of calcification process and earlier remodeling phenomenon lead to early recovery of *Cissus* treated animals. *Cissus* is also shown to cause early gain in the tensile strength of fractured bones of about 90 per cent of its normal strength at the end of 6 week. *Cissus quadrangularis* builds up the chemical composition of the fractured bone namely its mucopolysaccharides, collagen, calcium, phosphorus and others as well as its functional efficiency. Mucopolysaccharides play an

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important role in the healing by supplying raw materials for repairs. Therefore it seems that in the early period of bone fracture healing the greater the accumulation of these materials more rapid will be the rate of healing. Rapid the utilization of these raw materials earlier will be completion of healing process. Cissus quadrangularis not only causes the greater accumulation of mucopolysaccharides but also an earlier disappearance of mucopolysaccharides from the fractured area, associated with the earlier calcification and firmer callus formation.

In clinical trials Cissus quadrangularis as per radiological and clinical observations has been found to cause considerable reduction in the healing time of fractures by 55-33 percent. In few of the treated cases, although radiologically only, an early callus formation was observed but clinically the symptoms of fracture such as pain, tenderness, and swelling were significantly absent.

Cissus quadrangularis is shown to neutralize the anti-anabolic effect of steroids like cortisone in healing of fractures. Antianabolic effects of cortisone include inhibition of tissue regeneration and repair, also retarding formation of the specific skeletal

### **DISTRIBUTION**

Cissus quadrangularis Linn is a common perennial climber conspicuous by its fleshy quadrangular stems found throughout the hotter parts of India and Ceylon a perennial fleshy, cactus-like, jointed climber, with tendrils and a quadrangular stem, distributed throughout India particularly in the hotter parts.

### **Ayurveda – History, Pharmacology, Traditional Uses**

Cissus quadrangularis stem is used medicinally in the indigenous systems of medicine both in the ayurvedic and unani systems. The stem is alterative, anthelmintic, dyspeptic, digestive, tonic, analgesic in eye and ear diseases, irregular menstruation and asthma, fractures of bones and in complaints of the back and spine .It is said to be very useful in piles, indigestion and anorexia, useful in

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anaemia, epistaxis, disorders of otorrhoea, given internally and applied topically for broken bones, beaten into a paste and administered in asthma. The stem juice is beneficial as alterative in scurvy and irregular menstruation, and in diseases of the ear and in nose bleeding. A paste of the stem is given in asthma, and may be useful for muscular pains, burns and wounds, bites of poisonous insects and for saddle sores of horses and camels. The powder of dry shoots is given in digestive troubles. A decoction of the shoots with dry ginger and black pepper is given for body-pains. The infusion of the plant is anthelmintic. The extract of the plant exhibits cardiogenic and androgenic property. The roots of Cissus quadrangularis are useful in treatment of fractured bones. Young shoots are used in treatment of dyspepsia and indigestion and considered as to be powerful alterative.<sup>2,3,4,5</sup>

### Ayurvedic Properties

**Rasa** : Katu, Madhura

**Guna** : Laghu, Ruksha, Sara

**Virya** : Usna

**Vipaka** : Madhura

**Karma** : Dipana, vataslesmahara, Asthisandhanakara, Caksusya, Vrsya

**Ayurvedic uses:** Krmi, Arsa, Asthibhanga, Sandhi Cyuta

**Dose:** 3-6 g. (powder)

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### PHARMACOGNOSY

#### Macroscopic characters

**Colour:** Stem is buff coloured with greenish tinge

**Stem:** Drug occurs as pieces of stem of varying lengths. Stem is slender dichotomously branched, sub-angular, glabrous, brown, fleshy, fibrous, smooth with 4-winged internodes Constricted at nodes . Internodes 4-5 cm long; and 1-2 cm thick; a tendril occasionally present at nodes aerial roots developing during the rainy season.

**Leaf:** Leafless when old, leaves are 5-15 cm long; cordate, broadly ovate or reniform, crenate-serrate, sometimes 3-7 lobed, glabrous, 2.5-7.5 cm x 3 -9 cm;

**Flowers:** Flowers are small, greenish white, in short umbellate cymes;

**Fruit:** Berries are obovoid or globose in shape, succulent, very acrid, pea-sized, 1-seeded.

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### Microscopic characters

Mature stem shows squarish outline with prominent at each angular point. Epidermis is single layered, covered externally with thick cuticle; epidermis cells thin walled, rectangular and tangentially elongated, followed by 2-3 layers of cork and single layered cork cambium; cortex composed of 8-16 layers of thin-walled, circular to oval parenchymatous cells; four patches of collenchymatous cells present in all the four angular points embedded in cortical region like an umbrella arching over large vascular bundles; in the projected portion of angular region cortical cells filled with brown-red contents present; endodermis not distinct; stele consists of a large number of vascular bundles varying in size arranged in the form of a ring separated by rays of parenchyma;

3-4 vascular bundles larger in size, in each angular region, below collenchymatous patch, while rest of bundles smaller in size; vascular bundles collateral and open type, capped by sclerenchymatous sheath which is well developed in larger bundles; cambium and interfascicular cambium quite distinct; central region occupied by a wide pith composed of thin-walled, circular to oval parenchymatous cells; idioblasts containing raphides and isolated acicular crystals of calcium oxalate present in the outer region of cortex also found in most of the cells in cortical region; starch grains present throughout the cortical and the pith region.

**Powder characteristics:** Powder is Brown in colour; it shows fragments of vessels, fibers, parenchymatous cells and a few rosette crystals of calcium oxalate, starch grains and idioblast containing raphides and isolated acicular crystals of calcium oxalate.