

### 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.

*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 it's 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 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

### **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, tonic, analgesic & useful in reunion of fractures bones and in complaints of the back and spine .It is said to be very useful when given internally and applied topically for broken bones, The roots of Cissus quadrangularis are useful in treatment of fractured bones.

#### **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)