DESCRIPTION

Properties/Actions: Antibacterial, Anti-hemorrhagic, Anti-inflammatory, Antiseptic, Anti-tumorous, Antiviral, Cicatrizant, Hemostatic, Vulnerary

Phytochemicals: Alpha-calacorene, Alpha-copaene, Alpha-pinene, Alpha-thujene, Beta-caryophyllene, Beta-elemene, Beta-pinene, Betaine, Borneol, Calamenene, Camphene, Cuparophenol, D-limonene, Dimethylcedrusine, Dipentene, EO, Eugenol, Euparophenol, Gamma-terpinene, Gamma-terpineol, Lignin, Linalool, Methylthymol, Myrcene, P-cymene, Pectic-acid, Proanthocyanadins, Resin, Tannin, Taspine, Terpinen-4-ol, Vanillin

Sangre de Grado, spanish for "Blood of the Dragon," is a medium to large sized tree growing up 10 to 20 meters in height found throughout the tropics and the Amazon regions of South America. The genus Croton is a large one, with 750 species of trees and shrubs distributed in the tropical and subtropical regions of both hemispheres. The Croton family is rich in active alkaloids and several species of Croton are well-known medicinal plants used as purgatives and tonics. Although tall, the trunk is usually less than a foot in diameter and covered by smooth mottled bark. It has large heart-shaped bright green leaves and unique greenish-white flowers on long stalks. When the trunk of the tree is cut or wounded, a dark red sappy resin oozes out as if the tree is bleeding - earning its local name.

The red resin or "blood" as well as the bark of Sangre de Grado has a long history of indigenous use in the rainforest and South America. The earliest written reference dates its use to the 1600's when Spanish naturalist and explorer, P. Bernabé Cobo, found that the curative powers of the sap was widely known throughout the indigenous tribes of Mexico, Peru and Ecuador. For centuries, the sap has been painted on wounds to help stop bleeding, to accelerate healing and to seal and protect the injury from infection. The sap dries quickly and forms a barrier like a second skin. It is used internally as well as externally by indigenous tribes and local people in Peru for wounds, leucorrhea, fractures and piles as well as for intestinal and stomach ulcers. Other indigenous uses include using it for intestinal fevers and pyorrhea in vaginal baths before childbirth, for hemorrhaging after childbirth, and for skin disorders.

Sangre de Grado resin and bark is used in traditional medicine in South America with its uses closely following the indigenous uses. It Peruvian herbal medicine it is widely used and recommended for external use as a wound healing agent and as an antiseptic vaginal douche, for skin disorders like eczema, and to relieve itchy bug bites. It is taken internally for hemorrhaging, mouth ulcers in the mouth, tonsillitis, throat infections, tuberculosis, peptic ulcers, intestinal disorders, rheumatism and to enhance fertility. In Brazilian traditional medicine the sap is used for wounds, hemorrhaging, mouth ulcers and a general tonic. Although thousands of pounds of bark and resin are imported into the United States currently, American consumers and practitioners know very little of Sangre de Grado and its effective uses. Rather, imports of Sangre de Grado are going to a U.S.-based pharmaceutical company, Shaman Pharmaceuticals, Inc. Shaman has developed two pharmaceutical drugs which contain antiviral constituents they isolated and extracted from the bark and resin of Sangre de Grado. Their drugs include *Provir*, an oral product for the treatment of respiratory viral infections and *Virend*, a topical antiviral product for the treatment of herpes.

Since much of the research on Sangre de Grado has been performed in the course of developing proprietary drugs, most of the research has not been published or made available to the public. The active constituents in Sangre de Grado include proanthocyanadins (antioxidants), tannins, a lignan named dimethylcedrusine, and an alkaloid called taspine. Other research on taspine in 1977 indicates that it has demonstrated the ability to inhibit RNA-directed DNA polymerase activity in the myeloblastosis virus, Rauscher leukemia virus and Simian sarcoma virus. The taspine alkaloid from Sangre de Grado was first documented with anti-inflammatory actions in 1979. In 1985, taspine was again documented with anti-inflammatory, antisarcomic, and antiviral actions. The cicatrizant or wound healing action of Sangre de grado resin was first attributed to the alkaloid taspine in 1989. Several later studies in 1991 and 1993 also concentrated on the wound healing and antitumor properties of taspine. The lignan, dimethylcedrusine, was isolated by scientists in 1993

and was shown to a play a central role in Sangre de Grado's effective wound healing action as well. This Belgium study revealed that the crude resin stimulated contraction of wounds, helped in the formation of a crust at the wound site, regenerated skin more rapidly and assisted in the formation of new collagen. While the lignan was found to stimulate collagen formation, the crude resin was found to be four times more effective at wound healing and collagen formation than the lignan or the isolated alkaloid, taspine. The Belgium scientists also determined that taspine was active against herpes, however according the Shaman Pharmaceuticals, neither taspine nor dimethylcedrusine is the source of their new drugs. In 1994, other phytochemicals were found, including phenolic compounds, proanthocyanadins and diterpenes, which showed potent anti-bacterial activity as well as wound healing properties.

To date, 4 U.S. patents have been filed on Sangre de grado resin by two different pharmaceutical companies. The first by Walter Lewis, et.al. in 1992 showed issolating the taspine alkaloid from the resin and dissolving it in a DMSO carrier for wound healing. Another patent was filed in 1995 by Walter Lewis and WoundFast Pharmaceuticals, Inc., further documenting the taspine preparation they developed from the resin and it's effective uses to heal wounds more rapidly. The second company was Shaman Pharmaceuticals who filed their first patent in 1993, describing their methods for extracting a proanthocyanidin polymer chemical isolated in the resin and bark of the tree and treating animals and humans infected with respiratory syncytial virus, influenza A, B and C, and Herpes Simplex virus citing numerous clinical experiments they performed. They filed a second patent in 1996, continuing to document the antiviral properties, uses, and clinical testing and results of their extract from Sangre de grado resin and bark against numerous viruses.

As the research reveals, the indigenous uses of Sangre de Grado have certainly been validified. It is a wonderful new sustainable rainforest resource which consumers should learn about and take advantage of as it becomes available in the market place. It is helpful for all types of cuts, scrapes, external wounds, rashes and skin problems, simply being applied directly to the affected area. It also quickly relieves the sting and itch of insect bites. Most recently, North American practitioners are reporting it to be helpful in cases of stomach ulcers, ulcerative colitis and Crohn's when taken internally. Internal dosages based on documented indigenous uses and South American herbal medicine practices are generally 10 to 20 drops of resin placed in water and taken once to two times daily.

ETHNOBOTANY: WORLDWIDE USES

Brazil	Astringent, Cicatrizant, Hemostat, Hemorrhage, Tonic, Tumor, Ulcer(Mouth), Vulnerary, Wounds
Dominican Republic	Hemostat, Wounds
Mexico	Fever, Gum, Wounds
Peru	Antiseptic, Cicatrizant, Eczema, Hemostat, Hemorrhage, Fracture, Leucorrhea, Piles, Skin, Throat, Ulcers(Mouth), Ulcers(Stomach), Ulcers(Intestinal), Vaginitis, Vulnerary, Wounds

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Obiger Text ist ein Zitat aus dem Buch Herbal Secrets of the Rainforest