

THE RED HEART OF TRADITION: MEDICINAL AND DYEING APPLICATIONS OF SAPPAN WOOD

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Sappan wood water, made by soaking or boiling the heartwood of *Caesalpinia sappan*, has long been used in traditional medicine and natural dyeing. Medicinally, the infused water is known for its cooling, blood-purifying and anti-inflammatory properties, often used to support women's health, boost immunity and ease skin conditions. The water naturally takes on a reddish tint due to brazilin, the active pigment compound. This same pigment is also used as a natural dye for fabrics and foods. Thus, sappan wood water serves both healing and aesthetic purposes in many traditional cultures.

Sappan wood water: Made by boiling the heartwood of *Caesalpinia sappan* has been used for centuries in Ayurveda, Unani, Siddha, Traditional Chinese Medicine (TCM) and various Southeast Asian folk healing systems.

Preparation: The traditional method of preparing sappanwood water involves:

- Collecting the heartwood (reddish inner core) of *Caesalpinia sappan*, typically in the form of small chips or shavings.
- Boiling 5–10 grams of the wood in 300–500 ml of water for 10–20 minutes, until the water turns a deep reddish color.
- Straining and cooling the decoction, which may be consumed warm or at room temperature.
- It can also be reboiled once more to extract any remaining compounds.

This decoction is often consumed once or twice daily, either plain or mixed with other herbs like ginger, cinnamon or lemongrass depending on the condition being treated.



Active Constituents Responsible for Medicinal Benefits

Sappanwood is rich in a class of phenolic compounds, which lend the water its therapeutic effects:

- **Brazilin and Brazilain** – primary red colorants with anti-inflammatory, antioxidant and antimicrobial effects
- **Flavonoids** – including sappanchalcone and protosappanin A, B (immunomodulatory and anti-cancer properties)

- **Tannins and saponins** – useful in treating skin infections and gastrointestinal issues
- **Essential oils and lignans** – add to the antimicrobial, anti-inflammatory spectrum

Medicinal Benefits of Sappanwood Water

1. Blood Purifier and Detoxification Agent

- In Ayurvedic medicine, sappanwood water is classified as a “rakta shodhana” - blood purifier. It helps to eliminate toxins from the bloodstream, enhances liver function and supports overall detoxification.
- Traditionally used to treat acne, boils, skin eruptions and eczema.
- Also it promotes menstrual health by purifying uterine blood and reducing clot formation.

2. Anti-inflammatory and Analgesic Properties

- Decoction reduces inflammation and swelling in various conditions:
- Helpful in treating arthritis, joint pain, sore throat and muscular aches.
- Inflammation-reducing action is comparable to NSAIDs in some studies due to flavonoids and brazilin.

3. Antioxidant and Anti-Aging Activity

- Brazilin is a strong antioxidant that scavenges free radicals, which helps in slow aging and protects cells from oxidative stress.
- Prevents premature skin aging.
- Protects internal organs from degenerative changes due to oxidative damage.

4. Antimicrobial and Antiviral Action

Sappanwood water inhibits the growth of a broad range of bacteria, fungi and viruses, including:

- *Staphylococcus aureus*, *E. coli*, *Candida albicans*

- May assist in managing UTIs, dysentery and skin infections.
- In Southeast Asian folk medicine, it is even used for mild viral fevers and flu symptoms.

5. Antidiabetic and Metabolic Support

- Improves glucose metabolism and enhances insulin sensitivity.
- Reduces blood sugar spikes after meals.
- Supports pancreatic function and may be an adjunct therapy for Type 2 diabetes.

6. Cardiovascular Benefits

- Sappanwood water reduces bad cholesterol (LDL) and improves circulation, acting as a cardioprotective tonic.
- Flavonoids enhance vascular elasticity and reduce plaque formation.
- Blood-thinning properties help in preventing clot formation.

7. Menstrual and Postpartum Health

- In Unani and Siddha medicine, it is used to regulate menstrual cycles and ease painful menstruation (dysmenorrhea).
- Postpartum women are given this decoction to promote uterine cleansing, reduce inflammation and stimulate recovery.
- Enhances blood flow and alleviates menstrual cramps.

8. Skin Health and Dermatological Uses

- Drinking sappanwood water helps reduce acne, rashes, pigmentation and psoriasis.
- Applied topically (as cooled decoction) for wounds, fungal infections and itching.

9. Cooling and Hydrating Agent

Traditionally consumed in summer months in India and Sri Lanka as a body coolant to relieve:

- Heat strokes
- Excess body heat and dehydration
- Burning sensations in hands and feet due to heat imbalance.



Precautions and Contraindications

While sappanwood water is generally safe in moderate quantities, certain precautions apply:

- Avoid during pregnancy without medical advice due to its mild uterine stimulant effect.
- Excessive intake may lead to hypotension or dizziness in some individuals.
- Ensure genuine identification of the wood source to avoid adulteration or contamination.

Dosage recommendation (for adults):

100–150 ml of decoction, 1–2 times daily, or as prescribed by a healthcare professional.



Traditional and Sustainable Use of Sappan Wood in Natural Fabric Dyeing:

Sappan wood (*Caesalpinia sappan*), traditionally known for its rich red dye, has played an important role in natural textile dyeing across Asia for centuries. The heartwood contains brazilin, a natural pigment that oxidizes to form brazilein, the compound responsible for its characteristic deep red to reddish-pink hues. To

extract the dye, the wood is typically chipped or powdered and then soaked or boiled in water to release the colorants into a dye bath. The resulting liquor can be adjusted in tone by varying the pH or by adding mordant substances that help to fix the dye onto fabric. Alum is commonly used to yield bright pink or red shades, while iron salts produce more muted, purplish tones. Sappan wood has a natural affinity for protein-based fibers like silk and wool, which absorb the dye well and yield vibrant, long-lasting colors. However, cellulose fibers like cotton require pre-treatment with mordants or tannins to ensure proper dye uptake. The dyeing process is typically conducted at warm temperatures and the depth of shade depends on both the concentration of dye and the duration of immersion. Despite its relatively moderate lightfastness, sappan wood remains popular in eco-friendly textile movements due to its natural origin, low toxicity and historical significance. It continues to be used in traditional textile crafts, ceremonial garments and contemporary sustainable fashion, symbolizing a revival of ancient dyeing practices grounded in cultural heritage and environmental responsibility.