

Technical Data Report

for

Bobinsana

(*Calliandra angustifolia*)



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Bobinsana

Family: Mimosaceae

Taxon: *Calliandra angustifolia* Spruce ex Benth.

Synonyms: *Calliandra sodiroi* Harms, *Calliandra stricta* Rusby, *Calliandra subnervosa* Benth., *Feuillea angustifolia*

Common names: bobinsana, bobinzana, balata, bobensana, bubinial, bubinsana, bushiglla, capabo, chiperocigana, koprupi, kori-sacha, kuantí, neweí, quinilla blanca, semein, sháwi, yacu yutzu, yopoyo

Parts Used: Bark, root

Herbal Properties & Actions		
Main Actions:	Other Actions:	Standard Dosage: Bark or Root
reduces inflammation	contraceptive	Tincture: 2-5 ml twice daily
relieves arthritis	increases urination	Decoction: 1 cup twice daily
relieves rheumatism		
tonic		
cleanses blood		
stimulates		
kills cancer cells		

Bobinsana is a shrubby tree that grows 4 to 6 meters high that is usually found alongside rivers and streams in the Amazon Basin. It is native to South America and can be found in the Amazon regions of Peru, Ecuador, Colombia, Brazil and Bolivia. This water-loving tree is especially abundant on the banks of the Huallaga and Mayo rivers in Eastern Peru. Bobinsana can also be found alongside streams in the cloud forests and warmer valleys of the Eastern Andean slopes up to 1500 meters in elevation. Bobinsana produces pretty pink to reddish powderpuff-like flowers typical of the Mimosa family to which it belongs. The tree produces a usable resinous gum that is sometimes extracted and sold commercially.

TRIBAL AND HERBAL MEDICINE USES

In the Amazon, the Indians of the Rio Pastaza consider bobinsana to be a stimulant. They prepare a decoction of the roots to take for strength and energy. The Shipibo-Conibo Indians along the Ucayali River in Peru call the tree *semein* and prepare a bark tincture for rheumatism, arthritis, colds, uterine disorders, and edema (or water retention). The indigenous people and tribes in the Madre de Dios region of the Peruvian Amazon prepare a bark tincture (with aguardiente) for bone pain, arthritis, rheumatism, and colds. They also grate the bark into baths to increase resistance to sickness and to resist the cold and chills. Bobinsana is also used by the Indians as an adjunctive ingredient in various ayahuasca recipes in the Amazon. Ayahuasca is a phytochemically-rich combination of plants brewed by Indian shamans to connect to the spirit world. Through a series of reactions among chemicals from several plants working together, a hallucinogenic plant extract is created. While bobinsana is not itself a hallucinogen, it is considered a “plant teacher” and is sometimes added to ayahuasca recipes to help the shamans connect to and learn from the plants on a spiritual level.

In Peruvian herbal medicine systems a decoction of the bark is prepared and it is considered to be anti-rheumatic, contraceptive, tonic, stimulant, and depurative. A bark decoction is also used for

dyspnea (shortness of breath). A decoction of the roots is recommended for uterine cancer and as a depurative (blood cleanser) as well. A decoction of the entire plant (leaves, stem, twigs, flowers) is prepared as a decoction as a general energizing tonic.

PLANT CHEMICALS

The chemical constituents in bobinsana are not well documented. It is believed to contain harmala alkaloids, amino acids, cyanogenic glycosides, flavonoids, tannins, saponins, and sterols. Two studies reports the presence of several pipercolic acids.^{1,2}

BIOLOGICAL ACTIVITIES AND CLINICAL RESEARCH

Thus far, only one laboratory study has been published on bobinsana. Researchers in Sweden evaluated the anti-inflammatory action of a ethanol extract of the tree's bark. While they reported that it was inactive with a topical application on rat's ears, they did report that the extract inhibited COX-1 prostaglandin biosynthesis.³ COX-inhibitors are a class of pharmaceutical drugs for arthritis and this documented action may help explain why bobinsana has such a long-standing reputation for arthritis and rheumatism in South American herbal medicine.

CURRENT PRACTICAL USES

Bobinsana is not very well known as an herbal remedy in the United States. There are only a handful of bobinsana products to choose from in the U.S. natural products market. In Peru today, bobinsana is a well respected remedy for joint, bone, and muscle pain in arthritis and rheumatism. It is also a popular local remedy for uterine cancer.

Bobinsana Plant Summary
Main Actions (in order): anti-inflammatory, antiarthritic, depurative, anti-cancerous, tonic
Main Uses: 1. for arthritis and rheumatism 2. as a blood cleanser 3. for uterine cancer 4. as a stimulating tonic 5. for colds/flu
Properties/Actions Documented by Research: COX-1 inhibitor
Other Properties/Actions Documented by Traditional Use: anti-arthritic, anticancerous, anti-inflammatory, anti-rheumatic, contraceptive, depurative, stimulant, tonic
Cautions: Avoid if seeking pregnancy.

Traditional Preparation: If using it for arthritis and rheumatism, the bark is the preferred part of the plant and it is best prepared in a tincture or a decoction. For blood cleansing and cancer, the root is generally prepared as a decoction.

Contraindications: Bobinsana is traditionally used as a contraceptive in Peru. While there is no

research to confirm this possible action, those seeking to get pregnant should probably avoid this plant.

Drug Interactions: None known.

WORLDWIDE ETHNOMEDICAL USES	
Peru	as an anti-inflammatory, contraceptive, and tonic; for arthritis, bone pain, colds, edema, fatigue, rheumatism, uterine cancer, uterine disorders (prolapse), water retention

References/Footnotes:

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2. Romero, J. T. "Insecticidal imino acids in leaves of *Calliandra*." *Biochem. Syst. Ecol.* 1984; 12(3): 293-297.
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Ethnomedical Information on *Bobinsana* (*Calliandra angustifolia*)

Part / Location	Documented Ethnomedical Uses	Type Extract / Route	Used For	Ref #
Roots / Amazon	Indians of the Rio Pastanza use it as a stimulant and it's "taken for strength when a must must swim a river or fight."	Decoction / Oral	Human adult	ZZ1005
Bark / Peru	Taken for rheumatism.	Decoction / Oral	Human adult	ZZ1101
Roots / Peru	Taken for rheumatism. Taken for uterine cancer. Taken to cleanse the blood.	Decoction / Oral	Human adult	ZZ1101
Plant / Peru	Taken as a stimulant and invigorating tonic.	Decoction / Oral	Human adult	ZZ1101
Bark / Guyana	Boiled in water and used as a charm by the Guyana Patamona Indians.	Decoction / External	Human adult	ZZ1104
Bark / Peru	Shipibo-Conibo Indians take it for rheumatism, arthritis, colds, as a postpartum tonic, uterine disorders, and as a general tonic.	Tincture / Oral	Human adult	ZZ2003
Bark / Peru	Taken for prolapse and water retention.	Decoction / Oral	Human adult	ZZ2003
Roots / Peru	Taken for bone pain, rheumatism, and colds.	Tincture / Oral	Human adult	ZZ2009
Bark / Peru	Used in baths for body aches and chills, to resist the cold, and to avoid sickness.	Infusion / External	Human adult	ZZ2009
Plant / Peru	Used as a plant teacher.	Decoction / Oral	Human adult	ZZ2009
Bark + Roots / Peru	Used for rheumatism, uterine cancer, and to purify the blood.	Decoction / Oral	Human adult	ZZ2013
Plant / Peru	Used as a body tonic.	Decoction / Oral	Human adult	ZZ2013
Bark / Peru	Used as a contraceptive. 50 grams of bark is boiled in one liter of water until it is reduced to 1/4 of a liter. 1 cup daily is taken for three days following menstruation. Repeated each month.	Decoction / Oral	Human adult (female)	ZZ2013
Bark / Peru	Added to ayahuasca as a plant teacher.	Decoction / Oral	Human adult	T08133
Bark / Peru	Taken for dyspnea (breathlessness) and rheumatism.	Decoction / Oral	Human adult	L04137

Presence of Compounds in Bobinsana (*Calliandra angustifolia*)

Compound	Chemical Type	Plant Part	Plant Origin	Quantity	Ref #
Pipecolic acid	Proteid	Leaf	Ecuador	00.25%	M05070
Pipecolic acid, cis-4-cis-5-dihydroxy:	Proteid	Leaf	Colombia	Not stated	M06688
Pipecolic acid, cis-4-hydroxy:	Proteid	Leaf	Colombia	Not stated	M06688
Pipecolic acid, cis-4-trans-5-dihydroxy:	Proteid	Leaf	Colombia	Not stated	M06688
Pipecolic acid, cis-5-hydroxy:	Proteid	Leaf	Colombia	Not stated	M06688
Pipecolic acid, trans: 4-acetyl-amino:	Proteid	Leaf	Ecuador	00.1%	M05070
Pipecolic acid, trans: 5-hydroxy:	Proteid	Leaf	Ecuador	00.5%	M05070
Pipecolic acid, trans-4-cis-5-dihydroxy:	Proteid	Leaf	Colombia	Not stated	M06688
Pipecolic acid, trans-4-hydroxy:	Proteid	Leaf	Colombia	Not stated	M06688
Pipecolic acid, trans-4-trans-5-dihydroxy:	Proteid	Leaf	Colombia	Not stated	M06688
Pipecolic acid, trans-5-hydroxy:	Proteid	Leaf	Colombia	Not stated	M06688
Pipecolic acid, trans-cis: 4-5-dihydroxy:	Proteid	Leaf	Ecuador	00.1%	M05070
Pipecolic acid, trans-trans: 4-5-dihydroxy:	Proteid	Leaf	Ecuador	00.1%	M05070
Proline	Proteid	Leaf	Ecuador	00.1%	M05070

Biological Activities of Bobinsana (*Calliandra angustifolia*)

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Bark - Peru	Anti-inflammatory Activity	ETOH ext	Rat external	0.8 mg / ear	Inactive	vs. EPP-induced ear edema	L14626
Bark - Peru	Prostaglandin synthesis inhibition	ETOH ext	in vitro	100 mcg/ml	Active	vs. COX-1 catalysed prostaglandin biosynthesis	L14626

Biological Activities of Compounds in Bobinsana (*Calliandra angustifolia*)

Compound	Activity Tested For	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Pipecolic acid	Gamma-Glutamyl Transpeptidase Stimulation	Hepatoma - rat	Not stated	Active	Enzyme activity was increased by 29%	M25845
Pipecolic acid	Larvicidal Activity	In vitro	2.5% 5.0%	Active Active	<i>Spodoptera frugiperda</i> 100% mortality	M05070
Pipecolic acid	Serotonin (5-HT) Antagonist Activity	Rat	0.03 millimols	Active	Competitive antagonism	K19534
Pipecolic acid	Spasmogenic Activity	Rat	0.03 millimols	Inactive	Partial agonist of 5-HT	K19534
Pipecolic acid	Vasodilator Activity	Dog	Not stated	Inactive		T10791
Pipecolic acid, 5-hydroxy: trans	Platelet Aggregation Inhibition	In vitro	Not stated	Active	Platelet aggregation induced with 5-HT	N01610
Pipecolic acid, trans: 4-acetyl-amino	Larvicidal Activity	In vitro	0.1% 0.5%	Inactive	<i>Spodoptera frugiperda</i>	M05070
Pipecolic acid, trans: 4-acetyl-amino	Larvicidal Activity	In vitro	1.0%	Active	<i>Spodoptera frugiperda</i>	M05070
Pipecolic acid, trans: 5-hydroxy	Larvicidal Activity	In vitro	0.1% 0.5% 1.0%	Active Active Active	<i>Spodoptera frugiperda</i> 35% mortality 60% mortality	M05070

Compound	Activity Tested For	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Pipecolic acid, trans-cis: 4-5-dihydroxy	Larvicidal Activity	In vitro	0.1% 0.5% 1.0% 2.5%	Inactive Active Active Active	<i>Spodoptera frugiperda</i> 30% mortality 60% mortality 85% mortality	M05070
Pipecolic acid, trans-trans:: 4-5-dihydroxy	Larvicidal Activity	In vitro	1.0% 2.5%	Inactive Active	<i>Spodoptera frugiperda</i> 100% mortality	M05070

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