Technical Data Report

for

AMOR SECO

Desmodium adscendens

Sage Press

Written by Leslie Taylor, ND Published by Sage Press, Inc.
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Amor Seco

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Family: Fabaceae

Genus: *Desmodium*

Species: *adscendens*

Synonyms: *Desmodium coeruleum, D. caespitosum, D. glaucescens, D. heterophyllum, D. oxalidifolium, D. triflorum, Hedysarum adscendens, H. caespitosum, Meibomia adscendens*

Common Names: Amor seco, strong back, pega pega, margarita, beggar-lice, burbur, manayupa, hard man, hard stick, mundubirana, barba de boi, mundurana, owono-bocon, dipinda dimukuyi, dusa karnira, tick-clover, tick-trefoil, amor-do-campo

Parts Used: Aerial parts, leaves

Amor seco is a multi-branched, weedy, perennial herb that grows to 50 cm tall and produces numerous light-purple flowers and green fruits in small, beanlike pods. It is indigenous to many tropical countries and grows in open forests, pastures, and along roadsides. In Brazil the plant is known as *amor seco* or *amor-do-campo;* Peruvians call the plant *manayupa*. The *Desmodium* genus encompasses about 400 species of perennial and annual herbs growing in the temperate and tropical regions in the western hemisphere, and in Australia and South Africa. In the South American tropics, *Desmodium axillare*, another closely-related plant, is used interchangeably in herbal medicine systems.

Today, tribes in the Amazon rainforest use amor seco medicinally much as they have for centuries. A water infusion of the plant is given for nervousness, and it is used in baths to treat vaginal infections. Some tribes believe the plant has magic powers, and it is taken by lovers to rekindle a waning romance. Rio Pastaza natives in the Amazon brew a leaf tea and wash the breasts of dry mothers with it to promote lactation. Other Amazon tribes use amor seco as a contraceptive. Additional indigenous tribal uses include a leaf decoction for consumption, an application of pounded leaves and lime juice for wounds, and a leaf infusion for convulsions and venereal sores. An ethnobotanical survey (in which over 8,000 natives in various parts of Brazil were interviewed) showed that a decoction of the dried roots of amor seco is a popular tribal remedy for malaria.[1] The indigenous Garifuna tribe in Nicaragua uses a leaf decoction of amor seco internally for diarrhea and venereal disease, and to aid digestion.

Amor seco is also quite popular in herbal medicine throughout South and Central America. In Peruvian herbal medicine today, a leaf tea is used as a blood cleanser; to detoxify the body from environmental toxins and chemicals; as a urinary tract cleanser; and to treat ovarian and uterine problems such as inflammation and irritation, vaginal discharges, and hemorrhages. In Belize (where the plant is called “strong back”) the entire plant is soaked in rum for 24 hours, and then 1/4 cup is taken three times daily for seven to ten days for backache. Alternatively, the entire plant is boiled in three cups of water for ten minutes, and one cup of warm tea is taken before meals for three to five days for relief of backache, muscle pains, kidney ailments, and impotence. In Brazilian herbal medicine the dried leaves are used for the treatment of leucorrhea, body aches and pains, ovarian inflammation, excessive urination, blennorrhagia, and diarrhea. In Ghana a leaf decoction is taken for bronchial asthma, constipation, dysentery, and colic, and is also used to dress

wounds.

Active phytochemicals in amor seco have not been extensively studied; it is known to be rich in flavonoids, isoquinoline alkaloids, beta-phenylethylamines, and triterpenes known as *soyasaponins*. The plant has not demonstrated any toxicity in any studies published thus far.

Herbalists in Ghana have long used amor seco leaves to treat bronchial asthma; the treatment has been so successful that it attracted attention from the scientific community. In 1977, a clinical observatory study on humans showed that one to two tsp of dried amor seco leaf powder, given in three daily, divided dosages, produced improvement and remission in most asthma patients treated.[2,3] In an effort to understand the mechanism of action of this effective natural remedy, scientists conducted animal studies to determine its antiasthmatic properties. Subsequent animal studies with guinea pigs showed that aqueous or ethanolic extracts of amor seco taken orally reduced anaphylactic contraction, interfered with histamine-induced contractions, and reduced the amount of smooth-muscle-stimulating substances released from lung tissue.[4-8] Further studies with guinea pigs showed that amor seco leaf extract caused a dose-dependent reduction in the amount of spasmogens released anaphylactically and in anaphylactic-induced contraction of ileal muscle.[9-12] Extracts of the leaf relax smooth muscle, inhibiting contractions induced by a range substances (such as histamine).[8,13] These actions were cited as the basis for the beneficial effects observed in asthmatic patients treated; researchers summarized the research by saying, “From the preliminary work cited above, it would seem that *D. adscendens* has a potential for being a useful antiasthmatic agent and warrants a thorough investigation.”[2]

Extracts of amor seco have been shown to activate calcium-dependent potassium ion channels, known as maxi-K channels.[14] Maxi-K channels play an important role in regulating the tone of airway smooth muscle and the release of bronchoconstrictive substances in the lungs.[14] An active phytochemical of amor seco, dehydrosoyasaponin I, was cited as being “the most potent known potassium (maxi-K) channel opener.”[14] This effect of the plant on reducing bronchoconstriction through activation of maxi-K channels is thought to contribute to its therapeutic activity in asthma.[14] The tendency of airways to constrict (become too narrow) in response to various stimuli is a universal feature of asthma.[15] Leukotrienes, produced from arachidonic acid, are inflammatory mediators known to stimulate bronchoconstriction and increase mucus production in the airway—key features of asthma.[6,16] A leaf extract of amor seco has been documented to inhibit the production of histamine, leukotrienes,[6,9,17] and the release of free arachidonic acid.[8] Amor seco’s documented anti-allergic activity acts not only to inhibit airway smooth muscle contraction but, also, in allergy-induced muscle contraction at multiple sites throughout the body.[6] Related to this muscle-relaxant activity, the leaf of amor seco has also recently been documented to have *in vivo* (mice and rats) anticonvulsant activity, and *in vivo* (mice) analgesic actions.[18]

Scientists are just beginning to understand and explain amor seco’s effectiveness fully. Whether or not they continue to develop this plant into a proprietary asthma drug, natural health practitioners and herbalists will continue to use this wonderful herbal remedy for asthma as well as allergies. With some newer published research linking arthritis and rheumatism to various allergic reactions (and anaphylactic-induced chemical processes), the indigenous use of amor seco for back pain and arthritis just might be explained as well. Ease of administering amor seco, its highly effective results at low dosages, and lack of side effects or toxicity place amor seco in the first line of defense in the herbalist’s medicine chest of natural remedies.

Documented Properties and Actions: Analgesic, antianaphylactic, antiasthmatic, anticonvulsant, antihistamine, anti-inflammatory, antispasmodic, bronchodilator, depurative, diuretic, laxative, vulnerary

Main Phytochemicals: Astragalin, beta-phenylethylamines, cosmosiin, cyanidin-3-o-sophoroside, dehydrosoyasaponins, hordenine, pelargonidin-3-o-rhamnoside, salsoline, soyasaponins, tectorigenin, tetrahydroisoquinolines, tyramine

Traditional Remedy: Generally, 1–3 cups of amor seco leaf tea (standard infusion) daily, 4–6 ml of a standard tincture, or 4–5 g of powdered leaves in capsules are used by practitioners for most conditions.

Contraindications: None known.

Drug Interactions: None reported.

WORLDWIDE ETHNOBOTANICAL USES

Region	Uses
Africa	Asthma, bronchitis, central nervous system disorders, colic, ringworms, wounds
Amazonia	Backache, consumption, contraceptive, convulsion, galactagogue, headache, inflammation, magic, muscle spasms, nervousness, pain
Belize	Ache (back, joint, muscle), headache, kidney disorders
Brazil	Ache (body), anti-inflammatory, antispasmodic, blennorrhagia, cough, diarrhea, leucorrhea, malaria, ovarian inflammation, urination (excess)
Ghana	Anaphylaxis, asthma, colic, constipation, dysentery, wounds
Guinea	Anthelmintic, oxytoxic
Ivory Coast	Aphrodisiac, galactagogue
Liberia	Convulsion, sore, venereal disease
Nicaragua	Diarrhea, digestive, venereal disease
Peru	Blood, detoxifier, hemorrhage, inflammation, magic, nervousness, ovary, urinary, vaginitis
Trinidad	Depurative, marasmus, oliguria, venereal disease
USA	Asthma, backache, headache, impotency, joint aches, kidney, muscle pain, muscle spasms
Elsewhere	Asthma, cataplasm, consumption, convulsion, cough, fracture, laxative, scabies, sore, venereal disease, wound

References

1. Brandao, M., et al. “Survey of medicinal plants used as antimalarials in the Amazon.” *J. Ethnopharmacol.* 1992; 36(2): 175–82.
2. Boye, G. and O. Ampopo. “Plants and traditional medicine in Ghana.” *Economic and Medicinal Plant Research* 4 1990. Devon, England: Academic Press Ltd.: 33–4.
3. Ampopo, O. “Plants that heal.” *World Health 1977*. 1977: 26–30.
4. Addy, M. E., et al. “Effects of the extracts of *Desmodium adscendens* on anaphylaxis.” *J. Ethnopharmacol.* 1984; 11(3): 283–92.
5. Addy, M. E., et al. “Effect of *Desmodium adscendens* fraction F1 (DAFL) on tone and agonist-induced contractions of guinea pig airway smooth muscle.” *Phytother. Res*. 1989; 3(3): 85–90.
6. Addy, M. E., et al. “Effect of *Desmodium adscendens* fractions on antigen- and arachidonic acid-induced contractions of guinea pig airways.” *Can. J. Physiol. Pharmacol.* 1987; 66(6): 820–25.
7. Addy, M. E., et al. “Dose-response effect of one subfraction of *Desmodium adscendens* aqueous extract on antigen- and arachidonic acid-induced contractions of guinea pig airways.” *Phytother. Res.* 1987; 1(4): 180–86.
8. Addy, M. E., et al. “Effect of *Desmodium adscendens* fraction 3 on contractions of respiratory smooth muscle.” *J. Ethnopharmacol.* 1990; 29(3): 325–35.
9. Addy, M. E., et al. “Dose-response effects of *Desmodium adscendens* aqueous extract on histamine response, content and anaphylactic reactions in the guinea pig.” *J. Ethnopharmacol.* 1996; 18(1): 13–20.
10. Addy, M. E., et al. “Several chromatographically distinct fractions of *Desmodium adscendens* inhibit smooth muscle contractions.” *Int. J. Crude Drug Res.* 1989; 27(2): 81–91.
11. Addy, M. E., et al. “An extract of *Desmodium adscendens* activates cyclooxygenase and increases prostaglandin synthesis by ram seminal vesicle microsomes.” *Phytother. Res.* 1995; 9(4): 287–93.
12. Addy, M. E., et al. “Some secondary plant metabolites in *Desmodium adscendens* and their effects on arachidonic acid metabolism.” *Prostaglandins Leukotrienes Essent. Fatty Acids* 1992; 47(1): 85–91.
13. Barreto, G. S. “Effect of butanolic fraction of *Desmodium adscendens* on the anococcygeus of the rat.” *Braz. J. Biol*. 2002; 62(2): 223–30.
14. McManus, O. B., et al. “An activator of calcium-dependent potassium channels isolated from a medicinal herb.” *Biochemistry* 1993; 32(24): 6128–33.
15. Boulet, L. P. “Physiopathology of airway hyperresponsiveness.” *Curr. Allergy Asthma Rep*. 2003; 3(2): 166–71.
16. Hallstrand, T. S., et al. “Leukotriene modifiers.” *Med. Clin. North. Am.* 2002; 86(5): 1009–33.
17. Coffey, M., et al. “Extending the understanding of leukotrienes in asthma.” *Curr. Opin. Allergy Clin. Immunol*. 2003; 3(1): 57–63.
18. N’Gouemo, P., et al. “Effects of an ethanolic extract of *Desmodium adscendens* on central nervous system in rodents.” *J. Ethnopharmacol*. 1996; 52(2): 77–83.

The information contained herein is intended for education, research, and informational purposes only. This information is not intended to be used to diagnose, prescribe or replace proper medical care. The statements contained herein have not been evaluated by the Food and Drug Administration. The plant described herein is not intended to diagnose, treat, cure, mitigate, or prevent any disease.

Ethnomedical Information on Amor Seco (Desmodium adscendens)

Part / Location	Documented Ethnic Use	Type Extract / Route	Used For	Ref #
Leaf Africa	Used for central nervous system disorders.	Not stated	Human Adult	AF1005
Leaf Amazonia	Used to wash women's breasts when they lack milk.	Infusion External	Human Female	ZZ1005
Plant Amazonia	Used to treat backaches, muscle spasms and conditions arising from muscle spasms including headaches, pain and inflammation.	Not Stated Oral	Human Adult	AF1002
Leaf + Stem Belize	Used for backache.	Decoction Oral	Human Adult	AF1002
Whole Plant Brazil	Used as an antispasmodic and for diarrhea, excessive urination and coughs.	Decoction Oral	Human Adult	ZZ1096
Plant Brazil	Used for ovarian inflammation.	Not stated	Human Female	AF1003
Leaf Brazil	Used for leucorrhea and blenorrhagia.	Decoction Oral	Human Adult	ZZ1013
Root Brazil	Used for malaria.	Decoction Oral	Human Adult	K07256
Leaf Gabon	Used as a cataplasm in case of fracture. Used for venereal disease.	Leaves External Decoction External	Human Adult Human Adult	K26849 K26849
Leaf Ghana	Used for asthma.	Hot H2O Ext Oral	Human Adult	M16812
Leaf Ghana	Used for bronchial asthma, constipation, dysentery and colic. Used for wound dressing. Used for anaphylactic contractions.	Decoction Oral Not stated H2O Ext Oral	Human Adult	AF1001
Leaf + Stem Ghana	Used for treatment of asthma.	Leaves Oral	Human Adult	M06094
Leaf + Stem Ghana	Used for asthma.	Hot H2O Ext Oral	Human Adult	M20882
Plant Ghana	Used for asthma.	Decoction Oral	Human Adult	K08073
Plant Ghana	Used for asthma. Used with *Thonningia sanguinea* roots.	Decoction Oral	Human Adult	K13542
Plant Ghana	Used for asthma.	Not stated	Human Adult	AF1003
Leaf Guinea	Used as an anthelmintic and an oxytocic.	H2O Ext Oral	Human Adult	K27039

Part / Location	Documented Ethnic Use	Type Extract / Route	Used For	Ref #
Plant Ivory Coast	Used as a galactagogue. Used as an aphrodisiac.	Hot H2O Ext Oral Hot H2O Ext Oral	Human Female Human Male	A01966
Leaf Nicaragua	Used as a digestive; for diarrhea and venereal disease.	Decoction Oral	Human Adult	K27070
Plant Peru	Used for nervousness. Used for vaginal infections. Believed to have magic powers and is given to the lover who has lost interest in his mate, to make him/her come back.	Infusion Oral Infusion Bath Not Stated	Human Adult	ZZ1045
Leaf Sierra Leone	Used for scabies. Leaves of *Microdesmis puberula* and *Desmodium adscendens* are used as a poultice with white clay. Used for asthma. Infusion of crushed leaves of *Desmodium adscendens* and *Corchorus olitorius* is taken, and patient is massaged with crushed leaves.	Leaves External Infusion Oral	Human Adult Human Adult	T09679
Leaf + Stem USA	Used for acute and chronic backache and muscle spasms.	Tincture Oral	Human Adult	AF1002
Entire Plant USA	Used for relief of backache, muscle pains, kidney ailments and impotency. Used for headaches and joint aches.	Decoction Oral Decoction External	Human Adult	AF1018
Leaf Not Stated	Used for consumption. Used for convulsions and venereal sores. Used with lime juice on wounds.	Decoction Oral Infusion Oral Maceration External	Human Adult	AF1019

Presence of Compounds in Amor Seco (Desmodium adscendens)

Compound	Chemical type	Plant Part	Plant Origin	Quantity	Ref #
Astragalin	Flavonoid	Flowers	Nigeria	Not stated	K09797
Cosmosiin	Flavonoid	Flowers	Nigeria	Not stated	K09797
Cyanidin-3-o-sophoroside	Flavonoid	Flowers	Nigeria	Not stated	K09797
Hordenine	Isoquinoline alkaloid	Leaf + Stem Not Stated	Ghana Ghana	Not stated Not stated	K21627 K08073
Pelargonidin-3-o-rhamnoside	Flavonoid	Flowers	Nigeria	Not stated	K09797
Phenylethylamines, beta		Not stated	Not stated	Not stated	K08073
Salsoline	Isoquinoline alkaloid	Leaf + Stem	Ghana	Not stated	K08875
Soyasaponin I	Triterpene	Leaf	Ghana	00.00662%	K11866
Soyasaponin I, dehydro:	Triterpene	Leaf	Ghana	00.00222%	K11866
Soyasaponin III	Triterpene	Leaf	Ghana	00.00057%	K11866
Tectorigenin	Flavonoid	Flowers	Nigeria	Not stated	K09797
Tyramine	Isoquinoline alkaloid	Not Stated Leaf + Stem	Ghana Ghana	Not stated Not stated	K08073 K21627

Biological Activities for Extracts of Amor Seco (Desmodium adscendens)

Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Leaf Ghana	Antiasthmatic Activity	Plant	Oral Human Adult	3.0 gm	Active	1-2 teaspoonfuls of dry powder, given in 3 divided doses daily, prevented asthma.	L02543
Leaf Ghana	Antiasthmatic Activity	BuOH Ext	Guinea pig trachea	0.5 mg/ml	Active	Vs. arachidonic acid-induced contractions on indomethacin-pretreated tracheal spirals, a leukotriene-dependent reaction.	M21173
			Guinea pig lung	0.5 mg/ml	Inactive	Vs. arachidonic acid-induced contractions of lung parenchymal strips, a thromboxane-dependent reaction.	
Leaf Ghana	Antiasthmatic Activity	H2O Ext	Guinea pig lung	0.3 mg/ml	Active	Vs. ovalbumin-induced contraction of lung parenchymal strips from ovalbumin sensitized animals.	M16812
		H2O Ext	Guinea pig trachea	0.3 mg/ml	Active	Vs. ovalbumin-induced contraction of tracheal spirals.	
		H2O Ext	Guinea pig trachea	0.3 mg/ml	Active	Vs. arachidonic acid-induced contractions.	
		H2O Ext	Guinea pig lung	0.9 mg/ml	Active	Vs. arachidonic acid-induced contractions.	
Leaf + Stem Ghana	Antiasthmatic Activity	Hot H2O Ext	PO Guinea pig	5-20%	Active	Dosing for 21 days.	T12673
Leaf Ghana	Antiallergic Activity	BuOH Ext	Guinea pig lung & trachea	Not stated	Active	Inhibited allergic airway smooth muscle contraction at multiple sites.	M21173
Leaf + Stem Ghana	Antihistamine Activity	Hot H2O Ext	PO Guinea pig	5-20%	Active	Dosing for 21 days. Inhibition of histamine-induced ileal contraction.	T12673
Leaf + Stem Ghana	Antianaphylactic Activity	ETOH(95%)Ext	IG Guinea pig	Not stated	Active	Decreased the anaphylactic response in ileums isolated from treated animals by 48%. vs.albumin induced contraction.	M06094
		ETOH(95%)Ext	IG Guinea pig	Not stated	Active	Decreased the anaphylactic response in ileum isolated from treated animals.	
		ETOH(95%)Ext	IG Guinea pig	Not stated	Active	Vs. histamine-induced contractions.	

Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Leaf + Stem Ghana	Antianaphylactic Activity	H2O Ext	IG Guinea pig	Not stated	Active	Decreased the anaphylactic response in ileum isolated from treated animals. Reduced the amount of smooth muscle stimulating substances released from the lung tissue. Decreased the anaphylactic response in ileums isolated from treated animals by 65%. vs.albumin induced contraction.	M06094
Leaf + Stem Ghana	Antianaphylactic Activity	Hot H2O Ext	PO Guinea pig	5-20%	Active	Dosing for 21 days. Reduced anaphylactic-induced contraction of ileal muscle and the amount of spasmogens released anaphylactically.	T12673
Leaf France	Anticonvulsant Activity	ETOH Ext	Mice Rat	Not stated	Active Active Active Inactive Inactive	Suppressed the tonic phase of convulsion and mortality induced by pentylenetetrazole (PTZ). Delayed the onset of PTZ forelimb clonus. Delayed the onset of generalized limbic seizures induced by kainic acid. No effect on tonic convulsion induced by maximal electroshock. No effect on progression of limbic seizures to epilepticus.	AF1005
Leaf Ghana	Smooth Muscle Relaxant Activity	BuOH Ext	Guinea pig trachea	0.5 mg/ml	Active	Ovalbumin-induced contractions inhibited in the presence and absence of indomethacin.	M21173
Leaf Ghana	Smooth Muscle Relaxant Activity	H2O Ext	Guinea pig trachea Guinea pig trachea Guinea pig trachea Guinea pig lung	0.09 mg/ml 0.09 mg/ml 0.3 mg/ml 0.9 mg/ml	Active Active Active Inactive	Histamine-induced contractions were enhanced. Leukotriene d-4-induced contractions were enhanced. Carbachol-induced contractions were enhanced. Histamine-induced contractions were unchanged by the drug.	M21171

Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Leaf Ghana	Smooth Muscle Relaxant Activity	H2O Ext H2O Ext H2O Ext H2O Ext H2O Ext H2O Ext H2O Ext H2O Ext H2O Ext	Not stated lung Not stated trachea Not stated trachea Not stated lung Not stated lung Not stated lung Not stated trachea Not stated trachea Not stated trachea	0.03 mg/ml 0.03 mg/ml 0.03 mg/ml 0.30 mg/ml 0.30 mg/ml 0.30 mg/ml 0.30 mg/ml 0.30 mg/ml 0.30 mg/ml	Active Active Active Inactive Active Active Inactive Active Active	Vs. antigen-induced contractions. Vs. antigen-induced contractions. Vs. antigen-induced contractions. Vs. arachidonic acid-induced contractions. Vs. histamine-induced contractions. Vs. carbachol-induced contractions. Vs. arachidonic acid-induced contractions. Vs. carbachol-induced contractions. Vs. histamine-induced contractions.	M23957
Leaf Ghana	Smooth Muscle Relaxant Activity	BuOH Ext	Guinea pig lung & trachea	1.5 mg/ml	Active	Vs. ovalbumin-induced contractions.	M21173
Not Stated Brazil	Smooth Muscle Relaxant Activity	BuOH Ext	Guinea pig ileum & trachea	Not stated	Active	Inhibits contractions.	AF1003
Not Stated Brazil	Smooth Muscle Relaxant Activity	BuOH Ext	Rat anococcygeus muscle	Not stated	Active Inactive Inactive Active	Relaxed contractions induced by high potassium. No effect on contractions induced by phenylephrine. Relaxation not altered by methylene blue. Reduced response to calcium.	AF1003
Leaf Not Stated	Spasmolytic Activity	Fraction: Saponins	Muscle (unspecified)	Not stated	Active Inactive Inactive Inactive	Vs. antigen-induced contraction. Vs. arachidonic acid-induced contractions. Vs. carbachol-induced contractions. Vs. histamine-induced contractions.	K08073
Leaf Not Stated	Spasmolytic Activity	Fraction: Saponins	Guinea pig ileum	Not stated	Active	Vs. electrically induced contractions.	K08073
Leaf + Stem Ghana	Antispasmodic Activity	Chromatographic fraction	Guinea pig ileum Guinea pig ileum Guinea pig lung Guinea pig lung Guinea pig trachea Guinea pig trachea Guinea pig trachea Guinea pig lung	Not stated Not stated Not stated Not stated Not stated Not stated Not stated Not stated	Active Active Active Active Active Active Active Inactive	Vs. electrically induced contractions. Vs. histamine-induced contractions. Vs. ovalbumin-induced contractions of lung parenchymal strip. Vs. histamine-induced contractions. Vs. ovalbumin-induced contractions. Vs. histamine-induced contractions. Vs. carbachol-induced contractions. Vs. carbachol-induced contractions.	M20882

Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Leaf + Stem Ghana	Antispasmodic Activity	Hot H2O Ext	In drinking water Guinea pig ileum	5-20%	Active	Vs. histamine-induced contractions.	T12673
Not Stated USA	Potassium ion Channel Opener	Not stated	Bovine tracheal smooth muscle	Not stated	Active	Inhibits binding of monoiodotyrosine charybdotoxin to receptor sites in smooth muscle membranes that are associated with calcium-dependent potassium channels (maxi-K).	K11866
Leaf Ghana	Leukotriene Inhibition	BuOH Ext	Guinea pig lung & trachea	Not stated	Active	Inhibited the synthesis and/or activity of the bronchoconstrictor leukotrienes.	M21173
Leaf Ghana	Thromboxane Inhibition	BuOH Ext	Guinea pig lung & trachea	Not stated	Inactive		M21173
Leaf + Stem Ghana	Arachidonate Metabolism Inhibition	BuOH Ext	Human adult microsomes	2.0 mg/ml	Active	NADPH-dependent metabolism of arachidonic acid in kidney cortical microsome was inhibited by extract, as shown by decreased amounts of epoxy eicosatrienoic aicds, 19- and 20- hete and monohydroxy eicosatetraenoic acids.	K08875
Leaf Ghana	Arachidonic Acid Inhibition	H2O Ext	Guinea pig lung & trachea	Not stated	Active	Inhibits the release of free arachidonic acid.	M23957
Leaf + Stem Ghana	Cyclooxygenase Stimulation	BuOH Ext	Not stated	0.1 mg/ml	Active	Activity dependent on enzyme concentration and presence of GSH. Increase of PgE2 and decrease of PgF2-alpha.	K21627
Not Stated Ghana	Cytochrome P-450 Inhibition	BuOH Ext	Not stated	Not stated	Active	Formation of arachidonic acid derivatives via monoxygenase system was inhibited.	K08073
Leaf France	Hypothermic Effect	ETOH Ext	Mice	Not stated	Active	Induced hypothermia	AF1005
Leaf France	Analgesic Activity	ETOH Ext	Mice	Not stated	Active		AF1005
Not Stated Japan	Antioxidant Activity	Not stated	Cell Culture	Not stated	Inactive	Vs. DPPH radical and lipid peroxidation induced by H2O2.	AF1004
Leaf Ghana	Smooth Muscle Stimulant Activity	H2O Ext H2O Ext H2O Ext	Guinea pig lung Guinea pig trachea Guinea pig lung	0.9 mg/ml 0.9 mg/ml 0.9 mg/ml	Active Active Inactive	Vs. leukotriene-d-4-induced contractions. Vs. histamine-induced contractions. Vs. carbachol-induced contractions.	M21171

Biological Activities for Compounds of Amor Seco (Desmodium adscendens)

Compound Tested	Activity Tested For	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Astragalin	Histamine Inhibition	Cell Culture	Not stated	Active	Inhibited histamine release by basophils.	AF1006
Astragalin	Histamine Inhibition	Cell Culture	Not stated	Active	Inhibited the release of histamine by the human basophilic cell line KU812.	AF1007
Astragalin	Antidermatitis Activity	Oral Mice	1.5 mg/kg	Active	Reduced the severity of pre-existing dermatitis and prevented the development of atopic dermatitis.	AF1006
Astragalin	Antidermatitis Activity	Oral Mice	Not stated	Active	Reduced the development of atopic dermatitis, scratching behavior and serum IgE elevation. Histology revealed reduced infiltration of inflammatory cells, degranulated mast cells, thickening of the epidermis and hyperkeratosis.	AF1007
Beta-phenylethylamines	Prostaglandin Inhibition	Ram seminal vesicles	Not stated	Inactive	Resulted in the formation of more prostaglandins.	K08073
Dehydrosoyasaponin I	Potassium Ion Channel Opener	Bovine tracheal smooth muscle	10 nM	Active Inactive	62% inhibition of monoiodotyrosine charybdotoxin binding to receptors sites in smooth muscle membranes that are associated with calcium-dependent potassium channels (maxi-K channels). Non-maxi-K channels.	K11866
Dehydrosoyasaponin I	Potassium ion Channel Activator	Bovine aortic smooth muscle	100 nM	Active	Caused a threefold decrease in the concentration of calcium required to open calcium-activated potassium (maxi-K) channels.	AF1017
Hordenine	Gastrointestinal Activity	Mice	Not stated	Active	Inhibited gut movements.	AF1008
Hordenine	Adrenergic Activity	Horse	Not stated	Active	Liberated norepinephrine from stores.	AF1008
Hordenine	Cardiovascular Activity	Mice	Not stated	Active Active Active	Positive inotropic effect upon the heart. Increased systolic and diastolic blood pressure. Increased peripheral blood flow volume.	AF1008
Soyasaponin I	Toxicity(general)	Rat hepatocytes	500 mcg/ml	Active		AF1013
Saponin fraction	Spasmolytic Activity	Muscle (unspecified)	Not stated	Active Inactive Inactive Inactive	Vs. antigen-induced contraction. Vs. arachidonic acid-induced contractions. Vs. carbachol-induced contractions. Vs. histamine-induced contractions.	K08073

Compound Tested	Activity Tested For	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Saponin fraction	Spasmolytic Activity	Guinea pig ileum	Not stated	Active	Vs. electrically induced contractions.	K08073
Saponin fraction	Potassium ion Channel Activation	Smooth muscle	Not stated	Active	Calcium-activated potassium ion channel activated by the saponins.	K08073
Soyasaponin I	Calcium Channel Blocking Activity	Rat ventricular myocardiocyte	2 mcg/ml	Active		AF1015
Soyasaponin I	Cardiovascular Activity	Rat ventricular myocardiocyte	2 mcg/ml	Active	Decreased the number of spontaneously beating clusters and action potential parameters of myocardiocytes.	AF1015
Soyasaponin I	Sialyltransferase Inhibitor	Cell Culture	2.1 microM	Active	Hypersialylation is observed in oncogenic transformation, tumor metastasis and invasion.	AF1009
Soyasaponin I	Anti-tumor promoting Activity	Mouse	Not stated	Active	Skin tumor promotion.	AF1016
Soyasaponin I	Antiviral Activity	in vitro	Not stated	Active	*Herpes simplex virus* type-1.	AF1010
Soyasaponin I & III	Hepatoprotective Activity	Rat hepatocytes	Not stated	Active	Hepatoprotective against immunologically induced liver injury.	AF1011
Soyasaponin III	Hepatoprotective Activity	Rat hepatocytes	30 microM	Active		AF1012
Soyasaponin I	Hepatoprotective Activity	Rat hepatocytes	Not stated	Active	vs. liver injury induced by CCl4. Inhibited the elevation of GOT and GPT.	AF1013
Soyasaponin I	Antioxidant Activity	Mouse fibroblast cells	Not stated	Active	Inhibited hydrogen peroxide.	AF1014
Tetrahydroisoquinolines	Prostaglandin Inhibition	Ram seminal vesicles	Not stated	Active		K08073
Tetrahydroisoquinolines	Cytochrome P-450 Inhibition	Not stated	Not stated	Active	Monoxygenase metabolites of arachidonic acid assayed.	K08073

Literature Cited - Amor Seco (Desmodium adscendens)

A01966	MEDICINAL PLANTS OF THE IVORY COAST. BOUQUET,A: DEBRAY,M: TRAV DOC ORSTOM 32 : 1-. (1974) (SERV CENT DOCUMENT ORSTOM BONDY 93140 FRANCE)
K07256	SURVEY OF MEDICINAL PLANTS USED AS ANTIMALARIALS IN THE AMAZON. BRANDAO,MGL: GRANDI,TSM: ROCHA,EMM: SAWYER,DR: KRETTLI,AU: J ETHNOPHARMACOL 36 2: 175-182 (1992) (LAB FARM FAC FARM UNIV FED MINAS GERAIS OLEGARIO MACIEL 2360 BRAZIL)
K08073	SOME SECONDARY PLANT METABOLITES IN DESMODIUM ADSCENDENS AND THEIR EFFECTS ON ARACHIDONIC ACID METABOLISM. ADDY,ME: PROSTAGLANDINS LEUKOTRIENES ESSENT FATTY ACIDS 47 1: 85-91 (1992) (DEPT BIOCHEM UNIV GHANA LEGON GHANA)
K08875	AN EXTRACT OF DESMODIUM ADSCENDENS INHIBITS NADPH-DEPENDENT OXYGENATION OF ARACHIDONIC ACID BY KIDNEY CORTICAL MICROSOMES. ADDY,ME: SCHWARTZMAN,ML: PHYTOTHER RES 6 5: 245-250 (1992) (DEPT BIOCHEM UNIV GHANA LEGON GHANA)
K09797	IDENTIFICATION OF THE FLAVONOIDS IN PAPILIONACEAE FLOWERS USING PAPER CHROMATOGRAPHY. OGBEIDE,ON: PARVEZ,M: J LIQ CHROMATOGR 15 17: 2989-2996 (1992) (CHEM DEPT UNIV BENIN BENIN CITY NIGERIA)
K11866	AN ACTIVATOR OF CALCIUM-DEPENDENT POTASSIUM CHANNELS ISOLATED FROM A MEDICINAL HERB. MC MANUS,OB: HARRIS,GH: GIANGIACOMO,KM: FEIGENBAUM,P: REUBEN,JP: ADDY,ME: BURKA,JF: KACZOROWSKI,GJ: GARCIA,ML: BIOCHEMISTRY 32 24: 6128-6133 (1993) (RES LABS MERCK, SHARPE & DOHME RAHWAY NJ 07065 USA)
K13542	ANTI-ANAPHYLACTIC PROPERTIES OF THONNINGIA SANGUINEA. ADDY,ME: NYARKO,AK: PLANTA MED 1985 5: 360-363 (1985) (DEPT BIOCHEM UNIV GHANA GHANA WEST AFRICA)
K21627	AN EXTRACT OF DESMODIUM ADSCENDENS ACTIVATES CYCLOOXYGENASE AND INCREASES PROSTAGLANDIN SYNTHESIS BY RAM SEMINAL VESICLE MICROSOMES. ADDY,ME: SCHWARTZMAN,ML: PHYTOTHER RES 9 4: 287-293 (1995) (DEPT BIOCHEM UNIV GHANA LEGON GHANA)
K26849	MEDICINAL PLANTS USED BY THE MASANGO PEOPLE IN GABON. AKENDENGUE,B: LOUIS,AM: J ETHNOPHARMACOL 41 3: 193-200 (1994) (DEPT TRAD MED PHARMACOP CICIBA LIBREVILLE GABON)
K27039	MEDICINAL PLANTS USED BY THE FANG TRADITIONAL HEALERS IN EQUATORIAL GUINEA. AKENDENGUE,B: J ETHNOPHARMACOL 37 2: 165-173 (1992) (DEPT TRAD MED PHARM FAC MED HEALTH SCI LIBREVILLE GABON)
K27070	ETHNOBOTANY OF THE GARIFUNA OF EASTERN NICARAGUA. COEE,FG: ANDERSON,GJ: ECON BOT 50 1: 71-107 (1996) (SCH PHARM UNIV CONNECTICUT STORRS CT 06268 USA)
L02543	PLANTS THAT HEAL. AMPOFO,O: WORLD HEALTH 1977 : 26-30 (1977) (CENT RES PLANT MED MAMPONG-AKWAPIM GHANA)

M06094	EFFECTS OF THE EXTRACTS OF DESMODIUM ADSCENDENS ON ANAPHYLAXIS. ADDY,ME: AWUMEY,EMK: J ETHNOPHARMACOL 11 3: 283-292 (1984) (DEPT OF BIOCHEMISTRY UNIV OF GHANA LEGON GHANA)
M16812	DOSE RESPONSE EFFECT OF ONE SUBFRACTION OF DESMODIUM ADSCENDENS AQUEOUS EXTRACT ON ANTIGEN- AND ARACHIDONIC ACID-INDUCED CONTRACTIONS OF GUINEA-PIG AIRWAYS. ADDY,ME: BURKA,JF: PHYTOTHER RES 1 4: 180-186 (1987) (DEPT ANAT % PHYSIOL ATLANTIC VET COLL UNIV PRINCE EDWARD IS CHARLOTTETOWN C1A 4P3 CANADA)
M20882	SEVERAL CHROMATOGRAPHICALLY DISTINCT FRACTIONS OF DESMODIUM ADSCENDENS INHIBIT SMOOTH MUSCLE CONTRACTIONS. ADDY,ME: INT J CRUDE DRUG RES 27 2: 81-91 (1989) (DEPT BIOCHEM UNIV GHANA LEGON GHANA)
M21171	EFFECT OF DESMODIUM ADSCENDENS FRACTION F1 (DAF1) ON TONE AND AGONIST-INDUCED CONTRACTIONS OF GUINEA PIG AIRWAY SMOOTH MUSCLE. ADDY,ME: BURKA,JF: PHYTOTHER RES 3 3: 85-90 (1989) (DEPT BIOCHEM UNIV GHANA LEGON GHANA)
M21173	EFFECT OF DESMODIUM ADSCENDENS FRACTIONS ON ANTIGEN- AND ARACHIDONIC ACID-INDUCED CONTRACTIONS OF GUINEA PIG AIRWAYS. ADDY,ME: BURKA,JF: CAN J PHYSIOL PHARMACOL 66 6: 820-825 (1987) (DEPT ANAT PHYSIOL ATLANTIC VET COLL UNIV PRINCE EDWARD ISLAND CHARLOTTETOWN PEI C1A 4P3 CANADA)
M23957	EFFECT OF DESMODIUM ADSCENDENS FRACTION 3 ON CONTRACTIONS OF RESPIRATORY SMOOTH MUSCLE. ADDY,ME: BURKA,JF: J ETHNOPHARMACOL 29 3: 325-335 (1990) (DEPT BIOCHEM UNIV GHANA LEGON GHANA)
T09679	MEDICINAL PLANTS IN PUJEHUN DISTRICT OF SIERRA LEONE. MACFOY,CA: SAMA,AM: J ETHNOPHARMACOL 8 2: 215-223 (1983) (BOTANY DEPT FOURAH BAY COLL UNIV SIERRA LEONE FREETOWN SIERRA LEONE WEST AFRICA)
T12673	DOSE-RESPONSE EFFECTS OF DESMODIUM ADSCENDENS AQUEOUS EXTRACT ON HISTAMINE RESPONSE, CONTENT AND ANAPHYLACTIC REACTIONS IN THE GUINEA PIG. ADDY,ME: DZANDU,WK: J ETHNOPHARMACOL 18 1: 13-20 (1986) (DEPT BIOCHEM UNIV GHANA LEGON GHANA)
ZZ1005	THE HEALING FOREST: MEDICINAL AND TOXIC PLANTS OF THE NORTHWEST AMAZONIA. SCHULTES, R. E: PORTLANT: R.F. DIOSCORIDES PRESS (1990)
ZZ1013	DICIONARIO DAS PLANTAS UTEIS DO BRAZIL. 5TH ED: CRUZ, G.L: RIO DE JANEIRO: BERTRAND (1995)
ZZ1045	USEFUL PLANTS OF AMAZONIAN PERU. VASQUEZ, M.R: SECOND DRAFT. FILED WITH USDA'S NATIONAL AGRICULTURAL LIBRARY. (1990)
ZZ1096	ETHNOBOTANICAL SURVEY OF THE MEDICINAL PLANTS IN THE DOMINION OF MEADOWS IN THE REGION OF THE ALTO RIO GRANDE-MINAS GERAIS. RODRIGUES, V.E.G, ET AL. CIENC. AGROTEC., LAVRAS V.25, N.1, 102-123 JAM/FEB (2001) (BRAZIL)
AF1001	ECONOMIC AND MEDICINAL PLANT RESEARCH. VOL 4. PLANTS AND TRADITIONAL MEDICINE. WAGNER, H: FARNSWORTH, N.R: ACADEMIC PRESS: LONDON. (1990)
AF1002	HEALING BREAKTHROUGHS. THE RAINFOREST BACKACHE REMEDY. WATSON, C: THE DOCTORS PRESCRIPTION FOR HEALTHY LIVING. VOL 2, NO. 3.

AF1003	EFFECT OF BUTANOLIC FRACTION OF DESMODIUM ADSCENDENS ON THE ANOCOCCYGEUS OF THE RAT. BARRETO, GS: BRAZ J BIOL 62 2: 223-30 (2002) (DEPT OF BASIC HEALTH SCIENCES, UNIVERSIDADE FEDERAL DE MATO GROSSO, BRAZIL)
AF1004	FREE-RADICAL SCAVENGING ACTION OF MEDICINAL HERBS FROM GHANA: THONNINGIA SANGUINEA ON EXPERIMENTALLY-INDUCED LIVER INJURIES. GYAMFI, MA: YONAMINE, M: ANIYA, Y: GEN PHARMACOL 32 6: 661-7 (1999) (LABORATORY OF PHYSIOLOGY AND PHARMACOLOGY, SCHOOL OF HEALTH SCIENCES, FACULTY OF MEDICINE, UNIVERSITY OF THE RYUKYUS, NISHIHARA, OKINAWA, JAPAN)
AF1005	EFFECTS OF AN ETHANOLIC EXTRACT OF DESMODIUM ADSCENDENS ON CENTRAL NERVOUS SYSTEM IN RODENTS. N'GOUEMO, P: BALDY-MOULINIER, M: NGUEMBY-BINA, C: J ETHNOPHARMACOL 52 2: 77-83 (1996) (LABORATOIRE DE MEDECINE EXPERIMENTALE, INSERM, MONTPELLIER, FRANCE)
AF1006	ORAL ADMINISTRATION OF PERSIMMON LEAF EXTRACT AMELIORATES SKIN SYMPTOMS AND TRANSEPIDERMAL WATER LOSS IN ATOPIC DERMATITIS MODEL MICE, NC/NGA. MATSUMOTO, M: KOTANI, M: FUJITA, A: HIGA, S: KISHIMOTO, T: SUEMURA, M: TANAKA, T: BR J DERMATOL 146 2: 221-7 (2002) (RESEARCH AND DEVELOPMENT CENTER, SUNSTAR INCORPORATION, OSAKA, JAPAN)
AF1007	PERSIMMON LEAF EXTRACT AND ASTRAGALIN INHIBIT DEVELOPMENT OF DERMATITIS AND IGE ELEVATION IN NC/NGA MICE. KOTANI, M: MATSUMOTO, M: FUJITA, A: HIGA, S: WANG, W: SUEMURA, M: KISHIMOTO, T: TANAKA, T: J ALLERGY CLIN IMMUNOL 106 (1 PT 1): 159-66 (2000) (RESEARCH AND DEVELOPMENT CENTER, SUNSTAR INCORPORATION, OSAKA, JAPAN)
AF1008	PHARMACOLOGICAL EFFECTS OF HORDENINE. HAPKE, HJ: STRATHMANN, W: DTSCH TIERARZTL WOCHENSCHR 102 6: 228-32 (1995) (INSTITUT FUR PHARMAKOLOGIE, TOXIKOLOGIE UND PHARMAZIE, TIERARZTLICHEN HOCHSCHULE HANNOVER)
AF1009	SOYASAPONIN I, A POTENT AND SPECIFIC SIALYLTRANSFERASE INHIBITOR. WU, CY: HSU, CC: CHEN, ST: TSAI, YC: BIOCHEM BIOPHYS RES COMMUN 284 2: 466-9 (2001) (INSTITUTE OF BIOCHEMISTRY, NATIONAL YANG-MING UNIVERSITY, TAIPEI, TAIWAN)
AF1010	ANTI-HERPES VIRUS ACTIVITY OF FABACEOUS TRITERPENOIDAL SAPONINS. KINJO, J: YOKOMIZO, K: HIRAKAWA, T: SHII, Y: NOHARA, T: UYEDA, M: BIOL PHARM BULL 23 7: 997-9 (2000) (LABORATORY OF NATURAL MEDICINES, FACULTY OF PHARMACEUTICAL SCIENCES, KUMAMOTO UNIVERSITY, JAPAN)
AF1011	STRUCTURE-HEPATOPROTECTIVE RELATIONSHIPS STUDY OF SOYASAPONINS I-IV HAVING SOYASAPOGENOL B AS AGLYCONE. KINJO, J: IMAGIRE, M: UDAYAMA, M: ARAO, T: NOHARA, T: PLANTA MED 64 3: 233-6 (1998) (FACULTY OF PHARMACEUTICAL SCIENCES, KUMAMOTO UNIVERSITY, JAPAN)
AF1012	PARTIAL HYDROLYSIS OF SOYASAPONIN I AND THE HEPATOPROTECTIVE EFFECTS OF THE HYDROLYTIC PRODUCTS. STUDY OF THE STRUCTURE-HEPATOPROTECTIVE RELATIONSHIP OF SOYASAPOGENOL B ANALOGS. IKEDA, T: UDAYAMA, M: OKAWA, M: ARAO, T: KINJO, J: NOHARA, T: CHEM PHARM BULL (TOKYO) 46 2: 359-61 (1998) (FACULTY OF PHARMACEUTICAL SCIENCES, KUMAMOTO UNIVERSITY, JAPAN)
AF1013	KAIKASAPONIN III AND SOYASAPONIN I, MAJOR TRITERPENE SAPONINS OF ABRUS CANTONIENSIS, ACT ON GOT AND GPT: INFLUENCE ON TRANSAMINASE ELEVATION OF RAT LIVER CELLS CONCOMITANTLY EXPOSED TO CCL4 FOR ONE HOUR. MIYAO, H: ARAO, T: UDAYAMA, M: KINJO, J: NOHARA, T: PLANTA MED 64 1: 5-7 (1998) (FACULTY OF PHARMACEUTICAL SCIENCES, KUMAMOTO UNIVERSITY, JAPAN)

AF1014	PREVENTION OF HYDROGEN PEROXIDE DAMAGE BY SOYBEAN SAPONINS TO MOUSE FIBROBLASTS. YOSHIKOSHI, M: YOSHIKI, Y: OKUBO, K: SETO, J: SASAKI, Y: PLANTA MED 62 3: 252-5 (1996) (FACULTY OF AGRICULTURE, TOHOKU UNIVERSITY, SENDAI, JAPAN)
AF1015	ANTIOXIDATIVE ACTION OF SOYASAPONIN MONOMERS I, A1, A2, AND THEIR INHIBITORY EFFECTS ON ACTION POTENTIAL AND BEATING OF MYOCARDIOCYTES IN CULTURE. JIANG, Y: ZHONG, GG: QI, H: MA, XY: ZHONGGUO YAO LI XUE BAO 14 3: 269-73 (1993) (CENTRAL LABORATORY OF PHYSIOLOGY, NORMAL BETHUNE UNIVERSITY OF MEDICAL SCIENCES, CHANGCHUN, CHINA)
AF1016	ANTI-TUMOR-PROMOTING ACTIVITIES OF AFROMOSIN AND SOYASAPONIN I ISOLATED FROM WISTARIA BRACHYBOTRYS. KONOSHIMA, T: KOKUMAI, M: KOZUKA, M: TOKUDA, H: NISHINO, H: IWASHIMA, A: J NAT PROD 55 12: 1776-8 (1992) (KYOTO PHARMACEUTICAL UNIVERSITY, JAPAN)
AF1017	MECHANISM OF MAXI-K CHANNEL ACTIVATION BY DEHYDROSOYASAPONIN-I. GIANGIACOMO, KM: KAMASSAH, A: HARRIS, G: MCMANUS, OB: J GEN PHYSIOL 112 4: 485-501 (1998) (DEPT OF BIOCHEMISTRY, TEMPLE UNIVERSITY SCHOOL OF MEDICINE, PHILADELPHIA, PENNSYLVANIA, USA)
AF1018	RAINFOREST REMEDIES. ARVIGO, ROSITA: BALICK, M: LOTUS PRESS (1993)
AF1019	DESMODIUM ADSCENDENS. TICO ETHNOBOTANICAL DICTIONARY. WWW.ARS-GRIN.GOV/DUKE/DICTIONARY/TICO/D.HTML

Clinical Abstracts

Braz J Biol 2002 May;62(2):223-30

Effect of butanolic fraction of Desmodium adscendens on the anococcygeus of the rat.

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The chemical composition of plants can vary according to factors such as soil and time of collection. Desmodium adscendens (Sw.) D.C. var. adscendens (Papillionaceae) is a plant employed in the treatment of asthma in Ghana, Africa. Studies have shown that butanolic extract inhibits contraction of the ileum and trachea in guinea pigs. In Mato Grosso, this plant is used only in the treatment of ovarian inflammation. The objective of this work was to verify if the plant found in Mato Grosso also relaxes smooth muscle and to understand better its action. The cumulative application of the butanolic fraction relaxed the contraction maintained in the isolated anococcygeus of a rat, induced by high potassium, but not that induced by phenylephrine. Relaxation was not altered by methylene blue. The butanolic fraction reduced in a concentration-dependent way the maximum response of concentration-response curve to calcium in the anococcygeus muscle. The results suggest that the butanolic fraction acts, at least partly, through the blockade of voltage-sensitive Ca+2 channels.

J Ethnopharmacol 1996 Jun;52(2):77-83

Effects of an ethanolic extract of Desmodium adscendens on central nervous system in rodents.

N'gouemo P, Baldy-Moulinier M, Nguemby-Bina C.
Laboratoire de Medecine Experimentale, INSERM U249-CNRS UPR9008, Montpellier, France.

This study investigates some pharmacological effects of the ethanolic extract of the leaves of Desmodium adscendens (Papillionaceae), a medicinal plant in the African traditional medicine, on the central nervous system. The plant extract induced hypothermia and had analgesic effect in mice. D. adscendens suppressed the tonic phase of convulsion and mortality induced by pentylenetetrazole (PTZ) in mice. In addition, the plant extract delayed the onset of PTZ forelimb clonus, and generalized limbic seizures induced by kainic acid. In contrast, the plant extract did not affect either tonic convulsion induced by maximal electroshock in mice or the progression of limbic seizures towards the status epilepticus in rats.

Biochemistry 1993 Jun 22;32(24):6128-33

An activator of calcium-dependent potassium channels isolated from a medicinal herb.

McManus OB, Harris GH, Giangiacomo KM, Feigenbaum P, Reuben JP, Addy ME, Burka JF, Kaczorowski GJ, Garcia ML.
Department of Membrane Biochemistry and Biophysics, Merck Research Laboratories, Rahway, New Jersey 07065.

Large-conductance calcium-dependent potassium (maxi-K) channels play an important role in regulating the tone of airway smooth muscle and the release of bronchoconstrictive substances from nerves in the lung. Crude extracts of Desmodium adscendens, a medicinal herb used in Ghana as a treatment for asthma, inhibit binding of monoiodotyrosine charybdotoxin (125I-ChTX) to receptor sites in bovine tracheal smooth muscle membranes that have been shown to be associated with maxi-K channels. Using this assay, three active components have been purified and identified by NMR and MS. Comparison with authentic samples revealed the three active components as the known triterpenoid glycosides dehydrosoyasaponin I (DHS-I), soyasaponin I, and soyasaponin III. The most potent of these compounds, DHS-I, is a partial inhibitor of 125I-ChTX binding (Ki = 120 nM, 62% maximum inhibition). Inhibition of 125I-ChTX binding is primarily due to a decrease in the observed maximum number of binding sites, with a smaller decrease in affinity. DHS-I increases the rate of toxin dissociation from its receptor, suggesting that modulation of ChTX

binding occurs through an allosteric mechanism. DHS-I reversibly increases the open probability of maxi-K channels from bovine tracheal smooth muscle incorporated into planar lipid bilayers when applied to the intracellular, but not the extracellular, side of the membrane at concentrations as low as 10 nM. In contrast, DHS-I had no effect on several other types of potassium channels or membrane transporters. This natural product is the first example of a high-affinity activator of calcium-dependent potassium channels and is the most potent known potassium channel opener.

Prostaglandins Leukot Essent Fatty Acids 1992 Sep;47(1):85-91

Some secondary plant metabolites in Desmodium adscendens and their effects on arachidonic acid metabolism.

Addy ME.

Department of Biochemistry, University of Ghana, Legon.

The effects of three chemically different groups of compounds, (triterpenoid saponins, beta-phenylethylamines and tetrahydroisoquinolines), known to be present in Desmodium adscendens, on plasma membrane ion channel, cytochrome P450 NADPH-dependent oxygenation of arachidonic acid, and production of prostaglandins by the cyclooxygenase enzyme system, are described. The very high-conductance calcium-activated potassium ion channel, which is responsible for the maintenance of tone in smooth muscles, was activated by the saponins. The cytochrome P450 NADPH-dependent monooxygenase reaction, which produces epoxy- and hydroxylated eicosanoids from arachidonic acid metabolism, was inhibited by an analogue of the tetrahydroisoquinoline present in the plant. This analogue also acted as a reductant in the prostaglandin synthesizing system using microsomes from ram seminal vesicles. The same system was activated by the beta-phenylethylamines found in the plant material, with the formation of more prostaglandins, the type being dependent on the amount of cyclooxygenase enzyme used and the presence or absence of coenzyme.

J Ethnopharmacol 1990 Jul;29(3):325-35

Effect of Desmodium adscendens fraction 3 on contractions of respiratory smooth muscle.

Addy ME, Burka JF.

Department of Biochemistry, University of Ghana, Legon.

The third flash chromatography fraction prepared from an aqueous extract of Desmodium adscendens leaves (DAF3) was evaluated for pharmacological activity using contractions of tracheal spirals and lung parenchymal strips caused by ovalbumin, arachidonic acid, histamine and carbachol. DAF3 inhibited both the early and late phases of antigen-induced contractions of both tissues dose-dependently, but had no effect on arachidonic-induced contractions. With tracheal spirals, the inhibition occurred whether the tissue was pretreated with indomethacin or not. On tracheal spirals, the maximum contraction (Emax) caused by histamine and carbachol were enhanced, but the pD2 value for histamine was not affected while that for carbachol was decreased. DAF3 had no effect on Emax or pD2 values for these agonists on lung parenchymal strips. The results suggest that DAF3 may inhibit the release of free arachidonic acid.

Can J Physiol Pharmacol 1988 Jun;66(6):820-5

Effect of Desmodium adscendens fractions on antigen- and arachidonic acid-induced contractions of guinea pig airways.

Addy ME, Burka JF.

Department of Anatomy and Physiology, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, Canada.

Three fractions (n-butanol, F2, and L5), isolated from an aqueous extract of Desmodium adscendens, a plant used in Ghana for the management of asthma, were evaluated for their pharmacological activity using ovalbumin and arachidonic acid-induced contractions of guinea pig airways. All three fractions inhibited the ovalbumin-induced contractions of indomethacin-pretreated tracheal spirals from sensitized animals dose dependently, but only L5 and n-butanol inhibited such

contractions in the absence of indomethacin. The concentrations required to inhibit ovalbumin-induced contractions of lung parenchymal strips were threefold higher than with trachea. The contractile response over a 60-min period was divided into three phases. F2 and n-butanol inhibited all phases, whereas L5 inhibited only the late phase. n-Butanol and L5 inhibited arachidonic acid-induced contractions on indomethacin-pretreated tracheal spirals, a leukotriene-dependent reaction. There was no inhibition of arachidonic acid-induced contractions of lung parenchymal strips, which is largely a thromboxane- dependent reaction. The results suggest that D. adscendens contains several pharmacologically active substances that can inhibit allergic airway smooth muscle contraction at multiple sites, including the synthesis and (or) activity of the bronchoconstrictor leukotrienes.

J Ethnopharmacol 1986 Oct;18(1):13-20

Dose-response effects of Desmodium adscendens aqueous extract on histamine response, content and anaphylactic reactions in the guinea pig.

Addy ME, Dzandu WK.

Different concentrations of a hot water extract of Desmodium adscendens, a plant used in Ghana to control asthmatic attacks, were used in drinking water to evaluate the plant's anti-anaphylactic properties in guinea pigs. The results show that the extract's inhibition of histamine-induced ileal contraction is largely competitive and that its effect of reducing lung histamine content is dose-dependent. The results also show that the extract causes a dose-dependent reduction in the amount of spasmogens released anaphylactically and in anaphylactic-induced contraction of ileal muscle.

J Ethnopharmacol 1984 Aug;11(3):283-92

Effects of the extracts of Desmodium adscendens on anaphylaxis.

Addy ME, Awumey EM.

Desmodium adscendens, used by herbalists in Ghana for the treatment of asthma, is anti-anaphylactic in vitro. As the plant material is administered orally, invivo studies of its anti-anaphylactic property were undertaken using the guinea-pig. The results show that both aqueous and ethanolic extracts of D. adscendens, when taken orally, reduce anaphylactic contractions, interfere with histamine-induced contractions, and reduce the amount of smooth muscle stimulating substances released from lung tissue of guinea pigs.

J Ethnopharmacol 1990 Jul;29(3):325-35

Effect of Desmodium adscendens fraction 3 on contractions of respiratory smooth muscle.

Addy ME, Burka JF.

Department of Biochemistry, University of Ghana, Legon.

The third flash chromatography fraction prepared from an aqueous extract of Desmodium adscendens leaves (DAF3) was evaluated for pharmacological activity using contractions of tracheal spirals and lung parenchymal strips caused by ovalbumin, arachidonic acid, histamine and carbachol. DAF3 inhibited both the early and late phases of antigen-induced contractions of both tissues dose-dependently, but had no effect on arachidonic-induced contractions. With tracheal spirals, the inhibition occurred whether the tissue was pretreated with indomethacin or not. On tracheal spirals, the maximum contraction (Emax) caused by histamine and carbachol were enhanced, but the pD2 value for histamine was not affected while that for carbachol was decreased. DAF3 had no effect on Emax or pD2 values for these agonists on lung parenchymal strips. The results suggest that DAF3 may inhibit the release of free arachidonic acid.