

Technical Data Report

for

PICÃO PRETO

Bidens pilosa



All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage or retrieval system, without written permission from Sage Press, Inc.

This document is not intended to provide medical advice and is sold with the understanding that the publisher and the author are not liable for the misconception or misuse of information provided. The author and Sage Press, Inc. shall have neither liability nor responsibility to any person or entity with respect to any loss, damage, or injury caused or alleged to be caused directly or indirectly by the information contained in this document or the use of any plants mentioned. Readers should not use any of the products discussed in this document without the advice of a medical professional.



© Copyright 2003 Sage Press, Inc., P.O. Box 80064, Austin, TX 78708-0064. All rights reserved.

For additional copies or information regarding this document or other such products offered, call or write at sagepress@sbcglobal.net or (512) 506-8282.

Picão Preto

Preprinted from *Herbal Secrets of the Rainforest*, 2nd edition, by Leslie Taylor
Published and copyrighted by Sage Press, Inc., © 2003

Family: Asteraceae

Genus: *Bidens*

Species: *pilosa*

Synonyms: *Bidens adhaerescens*, *B. alausensis*, *B. chilensis*, *B. hirsuta*, *B. leucantha*, *B. montaubani*, *B. reflexa*, *B. scandicina*, *B. sundaica*, *Coreopsis leucantha*, *Kerneria pilosa*

Common Names: Picão preto, carrapicho, amor seco, pirca, aceitilla, cadillo, chilca, pacunga, cuambu, erva-picão, alfiler, clavelito de monte, romerillo, saltillo, yema de huevo, z'aiguille, jarongan, ketul, pau-pau pasir, Spanish needles, bident herisse, herbe d'aiguille, zweizahn, bidente piloso, mozote, beggar's tick

Parts Used: Aerial parts, whole herb

Picão preto is a small, erect annual herb that grows to 1 m high. It has bright green leaves with serrated, prickly edges and produces small, yellow flowers and black fruit. Its root has a distinctive aroma similar to that of a carrot. It is indigenous to the Amazon rainforest and other tropical areas of South America, Africa, the Caribbean, and the Philippines. It is often considered a weed in many places. It is a southern cousin to *Bidens tripartita*, the European bur marigold, which has an ancient history in European herbal medicine. In Brazil, the plant is most commonly known as *picão preto* or *carrapicho*; in Peru it is known as *amor seco* or *pirca*.

Picão preto has a long history of use among the indigenous people of the Amazon, and virtually all parts of the plant are used. Generally the whole plant is uprooted and prepared in decoctions or infusions for internal use, and/or crushed into cataplasms for external use. In the Peruvian Amazon picão preto is used for aftosa, angina, diabetes, dysentery, dysmenorrhea, edema, hepatitis, jaundice, laryngitis, and worms. In Piura a decoction of the roots is used for alcoholic hepatitis and worms. The Cuna tribe mixes the crushed leaves with water to treat headaches. Near Pucallpa, Peru, the leaf is balled up and applied to a toothache; the leaves also are used for headaches. In other parts of the Amazon, a decoction of the plant is mixed with lemon juice and used to treat angina, dropsy, hepatitis, sore throat, and water retention. The Exuma tribe grinds the sun-dried leaves with olive oil to make poultices for sores and lacerations and, in Tonga, an infusion of the flowers is used to treat upset stomach in food poisoning. In his book, *Amazonian Ethnobotanical Dictionary*, Dr. James Duke reports: "Chewing or gargling may help angina and sores in the mouth; infusions used as emmenagogue, antidysenteric, and to alleviate chills." He also reports that Brazilian indigenous peoples use the plant as a diuretic and to treat jaundice.

In Peruvian herbal medicine picão preto is considered anti-inflammatory, diuretic, and hepatoprotective. It is commonly used there for hepatitis, conjunctivitis, abscesses, mycosis, urinary infections, as a weight loss aid, and to stimulate childbirth. In Brazilian herbal medicine it is considered an emollient, astringent, antidiabetic, and diuretic used for fevers, malaria, leucorrhoea, jaundice, diabetes, sore throat, tonsillitis, obstructions in the liver and other liver disorders, urinary infections, and vaginal infections. An infusion or decoction of the entire plant is often gargled for tonsillitis and pharyngitis. Externally it is used for wounds, fungal infections, ulcers, diaper rash, insect bites, and hemorrhoids. Brazilian herbalists also report using picão preto to normalize insulin and bilirubin levels in the pancreas, liver, and blood. In Mexico the entire plant or leaf is used to treat diabetes, stomach disorders, hemorrhoids, jaundice, nervous problems, and fever. It is used as a gargle for mouth blisters, and the juice of the plant is used as a poultice for kidney and liver inflammation. In Cameroon the plant is used to lower blood pressure.

Picão preto is rich in flavonoids, terpenes, phenylpropanoids, lipids, and benzenoids. Even as early as 1979 and 1980, scientists demonstrated that specific chemicals found in the herb were toxic

to bacteria and fungi.^{1,2} Many of the flavonoids in picão preto have been documented with antimalarial activity.³ In 1991, Swiss scientists isolated several known phytochemicals with antimicrobial and anti-inflammatory properties, which led them to infer that the presence of these compounds “may rationalize the use of this plant in traditional medicine in the treatment of wounds, against inflammation and against bacterial infection of the gastrointestinal tract.”⁴ New bioactive phytochemicals, discovered in 1996, showed activity against transformed human cell lines.⁵

Picão preto has been the subject of recent clinical research that has supported many of its uses in herbal medicine. A research group in Taiwan documented its *in vivo* (rat) liver-protective activity, stating that a picão preto extract can “. . . protect against liver injuries from various hepatotoxins and has potential as a broad spectrum antihepatic agent.”⁶ This research group clinically demonstrated picão preto’s *in vivo* anti-inflammatory activities one year earlier (in 1995).⁷ In 1999, a Brazilian research group confirmed the *in vivo* anti-inflammatory activities in mice and attributed them to an immunomodulatory effect (which they previously had confirmed in *in vitro* research, in which a picão preto extract reduced the amount of pro-inflammatory cytokines in human blood).⁸ In addition, other research demonstrated that a picão preto extract inhibited prostaglandin-synthesis and cyclooxygenase (COX) activities.⁹ Both are chemical processes in the body which are linked to inflammatory diseases (and provide the focus for newer “COX-inhibitor” classes of anti-inflammatory and arthritis pharmaceutical drugs).

Other areas of research have validated picão preto’s traditional use for ulcers and diabetes. Extracts of the leaf (as well as the entire plant) have clinically shown to protect rats against chemical- and pylorus-induced gastric lesions and ulcers and, also, to reduce gastric acid secretion.^{10–12} The activity noted in these studies was higher than that shown by two prescription anti-ulcer drugs. Other *in vivo* studies with rats and mice have demonstrated that picão preto has hypoglycemic activity and is able to improve insulin sensitivity.^{13–15} Researchers (in 2000) attributed the plant’s hypoglycemic properties to a group of glucoside chemicals found in the aerial parts of the plant.¹⁶ Picão preto has been documented to prevent hypertension in rats fed a high-fructose diet, and to lower the resulting (elevated) blood pressure and triglyceride levels.^{17,18} In hypertensive rats (including high dietary salt-induced hypertension), extracts of the plant significantly lowered blood pressure—without having an effect on heart rate and urine volume.¹⁹ A leaf extract was also shown to have smooth-muscle relaxant activity on the heart (induced by norepinephrine and calcium).²⁰

Picão preto has long been used in traditional medicine systems for infections of all kinds: from such upper respiratory tract infections as colds and flu to urinary tract infections and venereal diseases—and even infected wounds on the skin. Research has begun to confirm these uses in several *in vitro* microbial studies. In 1991, scientists in Egypt first documented picão preto’s antimicrobial activity.⁴ Its antibacterial activity against Gram-positive bacteria was demonstrated in a 1997 study.²¹ Other *in vitro* studies have demonstrated its antibacterial activity against a wide range of bacteria including *Klebsiella pneumonia*, *Bacillus*, *Neisseria gonorrhoea*, *Pseudomonas*, *Staphylococcus*, and *Salmonella*.^{5,22–24} Newer (2001) research documented that a crude ethanol extract of the plant evidenced broad-spectrum antibiotic activity against numerous microbial pathogens.²⁵ Extracts of the leaf also have been documented to have antimycobacterial activity towards *Mycobacterium tuberculosis* and *M. smegmatis*.^{26,27} A water extract of the leaf has shown significant anti-yeast activity towards *Candida albicans*.²³ Much of picão preto’s antimicrobial actions have been attributed to a group of chemicals called *polyacetylenes*, which includes a chemical called *phenylheptatriyne*. Phenylheptatriyne has shown strong *in vitro* activity against numerous human and animal viruses, bacteria, fungi, and molds in very small amounts.^{1,5,28–30}

In the tropics, picão preto is also used for snakebite and malaria; research has confirmed these uses as well. Several *in vivo* animal studies have confirmed the plant’s antimalarial activity; among them, recent (2001) research documented it to reduce parasitaemia in animals by 43–66%.^{3,31} Its antimalarial activity also has been documented *in vitro*, with various extracts exhibiting up to a 90% inhibition of the *Plasmodium* (malaria-causing) organism.^{3,32} With regard to its status as a traditional snakebite remedy, one research group confirmed that a picão preto extract could protect mice from lethal injections of neurotoxic snake venom.³³

The last area of research has focused on picão preto's anticancerous possibilities. Early research, in various *in vitro* assay systems designed to predict antitumor activity, indicated positive results in the early 1990s.^{34,35} Picão preto first was reported to have antileukemic actions in 1995.³⁶ Then researchers from Taiwan reported (in 2001) that a simple hot-water extract of picão preto could inhibit the growth of five strains of human and mouse leukemia at less than 200 mcg per ml *in vitro*.³⁷ They summarized their research by saying that picão preto “. . . may prove to be a useful medicinal plant for treating leukemia.”

Picão preto, one of South America's well-known medicinal plants, is widely used for numerous conditions. Many of its indigenous uses are being validated and verified by modern research. Unfortunately, little is known of it in herbal medicine practices in the U.S.—and it is not widely available here. In South America, it is considered a safe plant to use; in the various animals studies performed to date, no toxic effects have been reported. Specific toxicology studies have shown no toxicity when dosages of (up to) 1 g per kg of body weight was injected into mice.³⁸

Documented Properties and Actions: Abortifacient, antibacterial, antidysenteric, antihyperglycemic, anti-inflammatory, antileukemic, antimicrobial, antimalarial, antimycobacterial, antiseptic, antispasmodic, antitumor, antiulcer, antiviral, antiyeast, astringent, bitter, diuretic, emmenagogue, emollient, hepatic, hepatoprotective, hypoglycemic, hypotensive, hypotriglyceridemic, stimulant, vermifuge, vulnerary

Main Phytochemicals: Aesculetin, behenic acid, beta-sitosterol, borneol, butanedioic acid, butoxylinoleates, cadinols, caffeine, caffeoylic acids, capric acid, daucosterol, elaidic acid, erythronic acids, friedelans, friedelins, germacrene D, glucopyranoses, glucopyranosides, inositol, isoquercitrin, lauric acid, limonene, linoleic acids, lupeol, luteolin, muurolol, myristic acid, okanin-glucosides, palmitic acid, palmitoleic acid, paracoumaric acids, phenylheptatriynes, phytanoic acid, phytol, pilosola A, polyacetylenes, precocene I, pyranoses, quercetin, sandaracopimaradiols, squalene, stigmasterols, tannic acid, tetrahydroxyaurones, tocopherolquinones, tridecapentaynes, tridecatetrayndienes, vanillic acid

Traditional Remedy: One-half to one cup of a standard decoction 1–3 times daily or 1–3 ml of a 4:1 tincture twice daily; 1–3 g of powdered herb in tablets, capsules, or stirred into water (or juice) twice daily can be substituted, if desired.

Contraindications:

- Picão preto has evidenced weak uterine stimulant activity in guinea pigs.³⁸ As such, it should not be used during pregnancy.
- This plant contains several coumarin derivatives. Coumarins are a group of chemicals that thin the blood. Those on blood thinning medications such as Warfarin® should use picão preto with caution and monitor these possible effects.
- Picão preto contains a small amount of naturally-occurring caffeine; it should not be used by those who are allergic or sensitive to caffeine.
- The plant has been documented to lower blood sugar levels in several animal studies. Those with hypoglycemia or diabetes should only use picão preto under the supervision of a qualified health care professional and monitor their blood sugar levels accordingly.
- Picão preto has been documented with hypotensive activity in several animal studies. People with heart conditions and those taking antihypertensive drugs should consult their doctors prior to using this plant to monitor these possible effects (as medications may need adjustment).

Drug Interactions: None clinically documented; however, the use of this plant may potentiate antidiabetic, anticoagulant, and antihypertensive drugs.

WORLDWIDE ETHNOBOTANICAL USES

Country	Uses
Africa	Anthelmintic, antiseptic, blood clots, burns, cataracts, colitis, conjunctivitis, constipation, diarrhea, earache, ecboic, food poisoning, hemostatic, inflammation, malaria, pneumonia, postpartum hemorrhage, proptosis, respiratory, rheumatism, sores, stomach pains, tuberculosis, worms, wounds, yaws
Amazonia	Aftosa, angina, chills, diabetes, diuretic, dysentery, dysmenorrhea, edema, emmenagogue, headache, hepatitis, jaundice, laryngitis, sore mouth, sore throat, stomachache, toothache, vulnerary, worms, wounds
Bahamas	Cancer, carminative, diuretic, fever, heat-rash itch, laceration, sore
Brazil	Antiseptic, antidontalgic, astringent, blennorrhagia, breast engorgement, cough, dental pain, diabetes, diaper rash, diuretic, dysentery, emollient, fever, fungal infections, galactagogue, gonorrhea, hemorrhoids, hepatitis, inflammation, insect bites, jaundice, leucorrhea, liver, liver obstructions, lung, malaria, pharynx, rheumatism, sclerosis (glands), scurvy, sialogogue, sore throat, stimulant, tonsillitis, ulcers, urinary infections, vaginal infections, vermifuge, vulnerary, wounds
Dominican Republic	Diuretic, emmenagogue, lactagogue, pectoral, sialogogue, toothache
Ghana	Allergy, ear, eye, styptic, urticaria
Haiti	Aftosa, amygdalitis, angina, catarrh, diabetes, lactagogue, nervous shock, rage, stomatitis, vomiting
Mexico	Antiseptic, diabetes, diuretic, embolus, fever, gastroenteritis, hemorrhoids, inflammation, jaundice, kidney, liver, mouth blisters, nervous problems, pectoral, snakebite, stomach, thorax
Panama	Cold, headache, intestine, prostate tumors, rheumatism
Peru	Abscess, aftosa, angina, antibilious, anti-inflammatory, antipyretic, anuria, baldness, buccal aphtha, childbirth, chills, cicatrizant, conjunctivitis, cystitis, diabetes, diuretic, dropsy, dysentery, dysmenorrhea, edema, emmenagogue, fungal infections, headache, hemorrhage, hepatitis, hepatoprotective, jaundice, lacerations, laryngitis, liver, mouth sores, mycosis, nephritis, nervous system pains, obesity, rheumatism, stimulant, sores, sore throat, tonsillitis, toothache, urinary infections, venereal diseases, vermifuge, vulnerary, weight loss, worms, wounds
Elsewhere	Abortifacient, alopecia, alterative, antidote, antiseptic, astringent, boil, bronchitis, burns, cancer, candida, catarrh, cicatrizant, cold, colic, colitis, conjunctivitis, cough, cuts, diabetes, diaphoretic, diarrhea, diuretic, dysentery, emmenagogue, eye, febrifuge, flatulence, food poisoning, gout, hematuria, hepatitis, hypoglycemic, hypotensive, inflammation, intestinal infections, liver, parasites, respiratory, rheumatism, skin, snakebite, stomach, styptic, thrush, toothache, ulcers, ulcerative colitis, urinary infections, vulnerary, worms, wounds

References

1. Wat, C. K., et al. "Ultraviolet-mediated cytotoxic activity of phenylheptatriyne from *Bidens pilosa* L." *J. Nat. Prod.* 1979; 42(1): 103–11.
2. Arnason, T., et al. "Photosensitization of *Escherichia coli* and *Saccharomyces cerevisiae* by phenylheptatriyne from *Bidens pilosa*." *Can. J. Microbiol.* 1980; 26(6): 698–705.
3. Krettli, A. U., et al. "The search for new antimalarial drugs from plants used to treat fever and malaria or plants randomly selected; a review." *Mem. Inst. Oswaldo Cruz* 2001; 96(8): 1033–42.
4. Geissberger, P., et al. "Constituents of *Bidens pilosa* L.: do the components found so far explain the use of this plant in traditional medicine?" *Acta Trop.* 1991; 48(4): 251–61.
5. Alvarez, L., et al. "Bioactive polyacetylenes from *Bidens pilosa*." *Planta Med.* 1996; 62(4): 355–57.
6. Chin, H. W., et al. "The hepatoprotective effects of Taiwan folk medicine 'ham-hong-chho' in rats." *Am. J. Chin. Med.* 1996; 24(3–4): 231–40.
7. Chih, H. W., et al. "Anti-inflammatory activity of Taiwan folk medicine 'ham-hong-chho' in rats." *Am. J. Chin. Med.* 1995; 23(3–4): 273–78.
8. Pereira, R. L., et al. "Immunosuppressive and anti-inflammatory effects of methanolic extract and the polyacetylene isolated from *Bidens pilosa* L." *Immunopharmacology* 1999; 43(1): 31–7.
9. Jager, A. K., et al. "Screening of Zulu medicinal plants for prostaglandin-synthesis inhibitors" *J. Ethnopharmacol.* 1996; 52(2): 95–100.
10. Alvarez, A., et al. "Gastric antisecretory and antiulcer activities of an ethanolic extract of *Bidens pilosa* L. var. *radiata* Schult. Bip." *J. Ethnopharmacol.* 1999; 67(3): 333–40.
11. Avalos, A. A., et al. "Influence of extracts from leaves and stem of *Bidens pilosa* on experimental ulcerogenesis in rats." *Rev. Cubana Farm.* 1984; 18(2): 143–50.
12. Tan, P. V., et al. "Effects of methanol, cyclohexane and methylene chloride extracts of *Bidens pilosa* on various gastric ulcer models in rats." *J. Ethnopharmacol.* 2000; 73(3): 415–21.
13. Alarcon-Aguilar, F. J., et al. "Study of the anti-hyperglycemic effect of plants used as antidiabetics." *J. Ethnopharmacol.* 1998; 61(2): 101–10.
14. Perez, R. M., et al. "A study of the hypoglycemic effect of some Mexican plants." *J. Ethnopharmacol.* 1984; 12(3): 253–62.
15. Alarcon-Aguilar, F. J., et al. "Investigation on the hypoglycaemic effects of extracts of four Mexican medicinal plants in normal and alloxan-diabetic mice." *Phytother. Res.* 2002; 16(4): 383–86.
16. Ubillas, R. P. "Antihyperglycemic acetylenic glucosides from *Bidens pilosa*." *Planta Med.* 2000; 66(1): 82–3.
17. Dimo, T., et al. "Leaf methanol extract of *Bidens pilosa* prevents and attenuates the hypertension induced by high-fructose diet in Wister rats." *J. Ethnopharmacol.* 2002; 83(3): 183–91.
18. Dimo, T., et al. "Effects of the aqueous and methylene chloride extracts of *Bidens pilosa* leaf on fructose-hypertensive rats." *J. Ethnopharmacol.* 2001; 76(3): 215–21.
19. Dimo, T., et al. "Hypotensive effects of a methanol extract from *Bidens pilosa* Linn. on hypertensive rats." *C. R. Acad. Sci. Paris* 1999; 322(4): 323–29.
20. Dimo, T., et al. "Effects of leaf aqueous extract of *Bidens pilosa* (Asteraceae) on KCL- and norepinephrine-induced contractions of rat aorta." *J. Ethnopharmacol.* 1998; 60(2): 179–82.
21. Rabe, T. "Antibacterial activity of South African plants used for medicinal purposes." *J. Ethnopharmacol.* 1997; 56(1): 81–7.
22. Chariandy, C. M., et al. "Screening of medicinal plants from Trinidad and Tobago for antimicrobial and insecticidal properties." *J. Ethnopharmacol.* 1999; 64(3): 265–70.
23. Desta, B. "Ethiopian traditional herbal drugs. Part II: Antimicrobial activity of 63 medicinal plants." *J. Ethnopharmacol.* 1993; 39(2): 129–39.
24. Sarg, T. M., et al. "Constituents and biological activity of *Bidens pilosa* L grown in Egypt." *Acta. Pharm. Hung.* 1991; 61(6): 317–23.
25. Khan, M. R., et al. "Anti-microbial activity of *Bidens pilosa*, *Bischofia javanica*, *Elmerillia papuana* and *Sigesbekia orientalis*." *Fitoterapia* 2001; 72(6): 662–65.
26. Boily, Y., et al. "Screening of medicinal plants of Rwanda (central Africa) for antimicrobial activity." *J. Ethnopharmacol.* 1986; 16(1): 1–13.
27. van Puyvelde, L., et al. "In vitro inhibition of mycobacteria by Rwandese medicinal plants." *Phytother. Res.* 1994; 8(2): 65–9.
28. Bondarenko, A. S., et al. "The antimicrobial properties of the polyacetylene antibiotic phenylheptatriyne." *Mikrobiol. Zh.* 1985; 47(2): 81–3.

29. Hudson, J. B., et al. "Investigation of the antiviral action of the photoactive compound phenylheptatriyne." *Photochem. Photobiol.* 1986; 43(1): 27–33.
30. Hudson, J. B., et al. "Nature of the interaction between the photoactive compound phenylheptatriyne and animal viruses." *Photochem. Photobiol.* 1982; 36(2): 181–85.
31. Krettli, A. U., et al. "New antimalarial drugs: A search based on plants used in popular medicine to treat fever and malaria." *Folha. Med.* 2001; 120(2): 119–26.
32. Brandao, M. G. L., et al. "Antimalarial activity of extracts and fractions from *Bidens pilosa* and other *Bidens* species (Asteraceae) correlated with the presence of acetylene and flavonoid compound." *Eur. J. Pharmacol.* 1997; 57(2): 131–38.
33. Chippaux, J. P., et al. "Drug or plant substances which antagonize venoms or potentiate antivenins." *Bull. Soc. Pathol. Exot.* 1997; 90(4): 282–85.
34. Gonzalez, A., et al. "Biological screening of Uruguayan medicinal plants." *J. Ethnopharmacol.* 1993; 39(3): 217–20.
35. Gupta, M. P., et al. "Screening of Panamanian medicinal plants for brine shrimp toxicity, crown gall tumor inhibition, cytotoxicity and DNA intercalation." *Int. J. Pharmacog.* 1996; 34(1): 19–27.
36. Hostettmann, K., et al. "Phytochemistry of plants used in traditional medicine." *Proceedings of the Phytochemical Society of Europe.* Clarendon Press: Oxford England, 1995.
37. Chang, J. S., et al. "Antileukemic activity of *Bidens pilosa* L. var. *minor* (Blume) Sherff. and *Houttuynia cordata* Thunb." *Amer. J. Chinese Med.* 2001; 29(2): 303–12.
38. Chagnon, M. "General pharmacologic inventory of medicinal plants of Rwanda." *J. Ethnopharmacol.* 1984; 12(3): 239–51.

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 Picao preto (*Bidens pilosa*)

Plant Part / Location	Documented Ethnic Use	Type Extract / Route	Used For	Ref #
Leaf Africa, East	Used as an anthelmintic	Hot H2O Ext Oral	Human Adult	K04594
Root Africa, East	Used against malaria.	Hot H2O Ext Oral	Human Adult	K04594
Flowers Africa, South	Used for diarrhoea.	Infusion Oral	Human Adult	L16048
Leaf + Root Africa, South	Used as an enema for stomach pains.	Infusion Enema	Human Adult	L16048
Leaf Argentina	Used as an abortifacient with <i>Petroselinum crispum</i> and <i>Viola odorata</i> .	Hot H2O Ext Oral	Human Female	T03717
Leaf Bahamas	Mixed with olive oil and applied to sores and lacerations.	Poultice External	Human Adult	ZZ1045
Leaf Bimini	Used for intestinal parasites and infections, especially intestinal worms.	Hot H2O Ext Oral	Human Adult	T00359
Aerial Parts Brazil	Used for diabetes. Used in hepatitis and as a vermifuge.	ETOH Ext Hot H2O Ext Oral	Not Stated Human Adult	K24859
Entire Plant Brazil	Used for malaria and diabetes. Used as a diuretic and as an anti-inflammatory.	Not Stated Oral	Human Adult	L15922
Entire Plant Brazil	Used as a vulnerary. Used for its hypoglycemic action and for hepatic disease.	Decoction External Decoction Oral	Human Adult Human Adult	M28328
Entire Plant Brazil	Used for obstructions of the liver, hepatitis, jaundice, fever, affections of the throat and coughs.	Infusion Oral	Human Adult	ZZ1096
Entire Plant Brazil	Used as an antidiabetic, vulnerary, antibiotic and vermifuge; used for hepatitis, jaundice and hemorrhoids. In diabetes it decreases glucose in the blood and activates the pancreas to release insulin. In liver affections it decreases bilirubin. Used for tonsillitis and inflammation of the pharynx. Used for wounds, ulcers, hemorrhoids, diaper rash and insect bites.	Infusion Oral Infusion Gargle Compress External	Human Adult	ZZ1076
Entire Plant Brazil	Used for liver problems such as jaundice and hepatitis. Used for urinary problems, diabetes and dysentery. Said to be a diuretic, depurgative, vulnerary and antiseptic. Used for fungal infections, as a vulnerary and antiseptic.	Infusion Oral Not Stated External	Human Adult	ZZ1092

Plant Part / Location	Documented Ethnic Use	Type Extract / Route	Used For	Ref #
Leaf Brazil	Used for hepatitis, jaundice and wounds. Used for rheumatism and gonorrhoea.	Infusion External Poultice External Infusion Oral	Human Adult	ZZ1096
Leaf Brazil	Used for liver obstructions, hepatitis, jaundice, leucorrhoea, diabetes, worms, and dysentery. Used for wounds and ulcers. Used for tonsillitis and inflammation of the pharynx.	Infusion Oral Decoction External Decoction Gargle	Human Adult	ZZ1072
Leaf Brazil	Used for wounds and jaundice. Used for leucorrhoea, diabetes, inflammation of the throat and obstruction of the liver.	Juice Not Stated Infusion Oral	Human Adult	ZZ1002
Leaf Brazil	Used as a vermifuge and diuretic. Used to treat scurvy, throat inflammations, fevers and diabetes. Used as an antiseptic to treat hemorrhoids. Used to treat leucorrhoea.	Not Stated Oral Not Stated External Not Stated	Human Adult Human Adult Human Female	L05437
Leaf Brazil	Used as a hepatoprotector and diuretic.	Infusion Oral	Human Adult	L10331
Root Brazil	Used for dental pain.	Not Stated	Human Adult	ZZ1079
Resin Brazil	Used for its aromatic and mucilage properties. Used as a stimulant, deobstructant, sialogogue, antidysenteric, antileucorrhoeic, vermifuge and vulnerary.	Not Stated	Human Adult	ZZ1079
Not Stated Brazil	Used as a diuretic and to treat jaundice.	Not Stated	Human Adult	ZZ1045
Not Stated Brazil	Used for jaundice, diabetes, inflammation of the throat, deep wounds and engorgements of the mammary glands.	Not Stated	Human Adult	ZZ1079
Not Stated Brazil	Used for urinary and throat infections.	Infusion Oral	Human Adult	K27030
Not Stated Brazil	Considered bitter, mucilaginous, stimulant, antiscorbutic, antidontalgic, sialagogue, antidysenteric, antidiabetic, antileucorrhoeic, anthelmintic and vulnerary. Used for jaundice. Used for sore throat, respiratory problems, hepatitis, to stop excessive milk production after childbirth and to aid healing from malignant sores.	Not Stated Juice Not Stated Infusion Not Stated	Human Adult	ZZ1099
Not Stated Brazil	Used as a galactagogue.	Not Stated	Human Female	L16798

Plant Part / Location	Documented Ethnic Use	Type Extract / Route	Used For	Ref #
Leaf Cameroon	Used for dysentery.	H2O Ext Oral	Human Adult	L15725
Leaf Cameroon	Used as a hypotensive agent.	Not Stated Oral	Human Adult	L05008
Aerial Parts Canary Islands	Used as a hypoglycemic and as a febrifuge. Used as a cicatrizant.	Infusion Oral Infusion External	Human Adult Human Adult	L02822
Flowers Canary Islands	Used as a febrifuge and as an anticatarrhal. Used as a vulnerary. Used for dye.	Infusion Oral Infusion External	Human Adult Human Adult	T10928
Entire Plant China	Used for rheumatism. Used for intestinal ailments.	Not Stated Not Stated Enema	Human Adult	AE1003
Leaf China	Used for wounds. Used as an anti-inflammatory.	Leaf Juice External Decoction Oral	Human Adult Human Adult	K29113
Leaf China	Used to dress wounds and ulcers. Used as an anti-inflammatory, styptic and alterative. Used for thrush and candida.	Juice External Decoction Not Stated Not Stated	Human Adult	AE1003
Leaf Cook Islands	Used for cuts. Used to treat burns. Used to treat cuts and wounds.	Maceration External Maceration External Leaf Juice External	Human Adult Human Adult Human Adult	T09553 K20471 K20471
Entire Plant Cuba	Used as an emmenagogue.	Hot H2O Ext Oral	Human Female	W02855
Leaf Ethiopia	Used to treat skin lesions.	Not Stated External	Human Adult	K21091
Not Stated Germany	Used as an astringent, diaphoretic and diuretic for gout, urinary tract infections, hematuria, colitis and alopecia.	Not Stated	Human Adult	AE1001
Leaf Haiti	Used for rage. Also used for nervous shock and vomiting.	Decoction Oral	Human Adult	T13846
Entire Plant India	Used medicinally.	Not Stated	Human Adult	T09100
Not Stated Kenya	Used for conjunctivitis. Used for cataracts and proptosis.	Ophthalmic Infusion Ophthalmic	Human Adult Human Adult	K27041
Not Stated Kenya	Used for malaria.	Infusion Oral	Human Adult	L13602
Leaf Madagascar	Used to treat hypertension.	Infusion Oral	Human Adult	L15693

Plant Part / Location	Documented Ethnic Use	Type Extract / Route	Used For	Ref #
Leaf Madeira	Used as a bath to treat dysentery. Used as an emmenagogue. Used to cure wounds.	Leaves External Infusion Oral Decoction External	Human Adult Human Female Human Adult	K27036
Entire Plant Mexico	Used to treat diabetes and stomach disorders. Used to treat hemorrhoids.	Infusion Oral Infusion Not Stated	Human Adult Human Adult	H20010
Entire Plant Mexico	Used for diabetes.	Decoction Oral	Human Adult	L03570
Entire Plant Mexico	Used as an antidiabetic and diuretic for gastroenteritis and for the thorax. Used as an antiseptic for hemorrhoids.	Not Stated Oral Not Stated External	Human Adult Human Adult	T08848
Entire Plant Mexico	Used for diabetes. Said to be poisonous to cattle if withered plants are eaten.	Decoction Oral Plant Oral	Human Adult Cow	T11739
Leaf Mexico	Used to treat snake bites.	Poultice External	Human Adult	K16948
Leaf Mexico	Used as a jaundice remedy. Plant is boiled with an unidentified species, "flor de muerto". Used for chest embolus with <i>Melampodium divaricatum</i> .	Decoction Oral Poultice	Human Adult Human Adult	T08016
Leaf Mexico	Used for mouth blisters.	Leaves External	Human Adult	K27822
Leaf + Stem Mexico	Used for treatment of diabetes.	Decoction Oral	Human Adult	M23792
Leaf + Stem Mexico	Used for diabetes and nervous problems.	Hot H2O Ext Oral	Human Adult	T13488
Plant Juice Mexico	Used to treat inflammation of liver and kidney. The juice of the plant is used as a poultice. Used to treat fever. A decoction from the whole plant is taken during the day time.	Plant Juice External Decoction Oral	Human Adult Human Adult	K16948
Plant Juice Nepal	Used to treat fresh cuts and wounds.	Plant Juice External	Human Adult	K25347
Plant Juice Nepal	Used for cuts and wounds.	Juice External	Human Adult	K24886
Leaf Nicaragua	Used for colds and coughs.	Decoction Oral	Human Adult	K27070
Leaf Nicaragua	Used for respiratory and pulmonary disorders.	Decoction Oral	Human Adult	L16047

Plant Part / Location	Documented Ethnic Use	Type Extract / Route	Used For	Ref #
Leaf Gel Nigeria	Used for colitis. Used for diarrhea. Used for earache. Used for conjunctivitis. Used as a hemostatic. Used for inflammation.	Sap External Sap Oral Plant Juice Aural Plant Juice Ophthalmic Plant Oral & External	Human Adult Human Adult Human Adult Human Adult Human Adult Human Adult	K26669
Leaf Panama	Used for headaches.	H2O Ext Not Stated	Human Adult	ZZ1045
Root Panama	Used for prostate tumors and the common cold. Used as an antirheumatic and for intestinal problems.	Root Oral Root Not Stated	Human Adult Human Adult	K29268
Flowers Papua-New Guinea	Used to extract pus from a boil.	Flowers External	Human Adult	M23305
Entire Plant Peru	Used for buccal aphtha, hepatitis, angina, nephritis and cystitis; as a diuretic in urinary retention and dropsy. Used as an antipyretic, emmenagogue and antidyenteric. Used for baldness.	Hot H2O Ext Oral Hot H2O Ext External	Human Adult Human Adult	T15323
Entire Plant Peru	Used to stimulate labor; used for weightloss and hepatitis. Used for urinary infections; as a diuretic and anti-inflammatory.	Decoction Oral Infusion Oral	Human Adult	ZZ1008
Leaf Peru	Used for its cicatrizant properties on deep wounds.	Maceration External	Human Adult	ZZ1093
Leaf Peru	Used for abscesses and fungal infections. Used for conjunctivitis.	Juice External Juice Eyes	Human Adult	ZZ1008
Leaf Peru	Used for toothache, headache and hepatitis. Used for angina, hepatitis, dysmenorrhea, sores and lacerations.	Not Stated Oral Decoction Oral	Human Adult Human Adult	L04137
Root Peru	Used for worms. Considered good for tonsillitis. Used as an antiveneal. Used to massage stomachs of women in labor.	Decoction Oral Not Stated Oral Not Stated External	Human Adult Human Adult Human Female	L04137
Root Peru	Used for liver affections; used to prevent liver affections from alcohol and spice abuse. Used for toothache.	Decoction Oral Root Chewed	Human Adult	ZZ1093
Root Peru	Used for alcoholic hepatitis and worms.	Decoction Oral	Human Adult	ZZ1027

Plant Part / Location	Documented Ethnic Use	Type Extract / Route	Used For	Ref #
Not Stated Peru	Used for its antibilious, diuretic, stimulant, vermifuge and vulnerary properties. Used for hepatitis. Used for angina (concoction mixed with lemon juice).	Not Stated Not Stated Gargle	Human Adult	ZZ1093
Not Stated Peru	Used for aftosa, angina, diabetes, dysentery, dysmenorrhea, edema, hepatitis, jaundice, laryngitis and worms.	Not Stated	Human Adult	ZZ1041
Not Stated Peru	Used for rheumatism and internal hemorrhage. Used for rheumatism and nervous system pains.	Infusion Oral Decoction External	Human Adult	ZZ1093
Not Stated Peru	Used for angina and sores in the mouth. Used as an emmenagogue, antidysenteric and to alleviate chills. Used with lemon juice for angina, sore throat, water retention, hepatitis and dropsy.	Chewed or Gargled. Infusion Oral Decoction Oral	Human Adult	ZZ1043
Not Stated Peru	Used for anuria and dysmenorrhea.	Decoction Oral	Human Adult	K27875
Not Stated Peru	Used as an emmenagogue by the rural populace.	Not Stated	Human Adult Female	J01423
Entire Plant Rodrigues Islands	Used for skin disorders. Used for flatulence.	Epicarp Oral Decoction Oral	Human Child Human Child	K26851
Not Stated Russia	Used as an astringent, diaphoretic and diuretic for gout, ulcerative colitis, hematuria and alopecia.	Not Stated	Human Adult	AE1002
Leaf Rwanda	Used to treat respiratory ailments (tuberculosis implied).	Decoction Oral	Human Adult	K17419
Leaf Rwanda	Used for pneumonia and yaws. Used as an antiseptic.	Hot H2O Ext Oral Hot H2O Ext Not Stated	Human Adult Human Adult	M25480
Leaf Rwanda	Used for wounds and sores. Used for malaria and yaws.	Not Stated External Not Stated Oral	Human Adult Human Adult	T08870
Entire Plant Taiwan	Used to treat diabetes mellitus.	Decoction Oral	Human Adult	K14672
Entire Plant Taiwan	Used to treat hepatitis.	Decoction Oral	Human Adult	M29355
Entire Plant Taiwan	Used for liver disease.	Hot H2O Ext Oral	Human Adult	T14999

Plant Part / Location	Documented Ethnic Use	Type Extract / Route	Used For	Ref #
Leaf Tanzania	Roasted with banana leaf and used as a paste for wounds. Used for malaria. Used for constipation, intestinal worms and stomachaches. Used for conjunctivities and rheumatic inflammation. Used for earaches. Used for diarrhea. Used for burns.	Leaves External Root Oral Leaves Oral Leaves Ophthalmic Leaves Aural Fronde Oral Plant External	Human Adult	J18843
Leaf Tonga	Used to treat retention of blood clots in the uterus (called "toka'ala locally). Four species of plants are used in the preparation. Infusion is taken orally or used to massage lower abdomen. Plants used are, <i>Bidens pilosa</i> , <i>Ipomoea pes-caprae</i> , <i>Glochidion concolor</i> , and <i>Thespesia populnea</i> . Used to treat postpartum hemorrhage. <i>Bidens pilosa</i> is used alone or with <i>Wedelia biflora</i> .	Infusion Oral Infusion Oral	Human Female	T08685
Flower Tonga	Used to treat upset stomach in food poisoning.	Infusion Oral	Human Adult	ZZ1045
Leaf Trinidad	Used to treat diabetes.	Not Stated Oral	Human Adult	J19078
Not Stated Trinidad	Used for diabetes.	Not Stated Oral	Human Adult	J18701
Not Stated Uganda	Used as an ecobolic.	Not Stated	Human Female	A04210
Aerial Parts Uruguay	Used as an antiseptic. Used for inflammation.	Not Stated External Not Stated Oral	Human Adult Human Adult	K18125
Aerial Parts West Indies	Tea with other plants for cancer.	Hot H2O Ext Oral	Human Adult	T00701

Presence of Compounds in Picao preto (*Bidens pilosa*)

Compound	Chemical type	Plant Part	Plant Origin	Quantity	Ref #
Aesculetin	Coumarin	Entire Plant	Egypt	00.03%	K08651
Amyrin, beta:	Triterpene	Entire Plant	Egypt	00.03075%	K08651
Aurone, 3'-4'-6-7-tetrahydroxy: cis:6-o-(6-o-acetyl-beta-d-glucopyranoside)	Flavonoid	Leaf	Japan	00.0045%	H07457
Aurone, 3'-4'-6-7-tetrahydroxy: cis:6-o-(6-o-para-coumaroyl-beta-d-glucopyranoside)	Flavonoid	Leaf	Japan	00.003%	H07457
Aurone, 3'-4'-6-7-tetrahydroxy: cis:6-o-beta-d-glucopyranoside	Flavonoid	Leaf	Japan	00.00975%	H07457
Aurone, 3'-4'-6-7-tetrahydroxy: cis: 7-o-beta-d-glucopyranoside	Flavonoid	Leaf	Japan	00.0008%	H07457
Aurone,6-o-(2''-4''-6''-triacetyl-beta-d-glucopyranosyl)-3'-4'-6-7-tetrahydroxy: cis:	Flavonoid	Aerial Parts	China	00.00085%	H23546
Aurone,6-o-(3''-4''-6''-triacetyl-beta-d-glucopyranosyl)-3'-4'-6-7-tetrahydroxy: cis:	Flavonoid	Aerial Parts	China	00.00030%	H23546
Aurone,6-o-(4''-6''-diacetyl-beta-d -glucopyranosyl)-3'-4'-6-7-tetrahydroxy:	Flavonoid	Aerial Parts	China	00.00181%	H23546
Behenic acid	Lipid	Leaf	Philippines	Not stated	H16059
Borneol	Monoterpene	Leaf Essential Oil	Japan	02.00%	M31438
Butanedioic acid	Alkane to c4	Aerial Parts	China	00.00181%	H23546
Butoxy-2-ethanol	Alkanol to c4	Entire Plant	Taiwan	00.00026%	H28235
Butoxy-2-ethyl-linoleate	Lipid	Entire Plant	Taiwan	00.00082%	H28235
Butoxy-2-ethyl-linolenate	Lipid	Entire Plant	Taiwan	00.00064%	H28235
Butoxy-2-ethyl-oleate	Lipid	Entire Plant	Taiwan	00.00075%	H28235
Cadinol, alpha:	Sesquiterpene	Leaf Essential Oil	Japan	11.00%	M31438

Compound	Chemical type	Plant Part	Plant Origin	Quantity	Ref #
Caffeine	Alkaloid	Aerial Parts	England	Not stated	L09755
Capric acid	Lipid	Entire Plant	Egypt	Not stated	K08651
Caryophyllene, beta:	Sesquiterpene	Leaf Essential Oil Leaf Essential Oil	Cameroon Japan	Not stated 73.00%	J16663 M31438
Coumaric acid, para: 4-o-(2-o-acetyl -6-o-para-coumaroyl-beta-d-glucopyranoside)	Phenylpropanoid	Leaf Aerial Parts	Japan China	00.01% 00.00054%	H07457 H23546
Coumaric acid, para: 4-o-(6 -o-para-coumaroyl-beta-d-glucopyranoside)	Phenylpropanoid	Leaf	Japan	00.0045%	H07457
Daucosterol	Steroid	Entire Plant	Egypt	00.045%	K08651
Elaidic acid	Lipid	Leaf	Philippines	Not stated	H16059
Erythronic acid, 2-o-caffeoyl-2-c-methyl-d:	Phenylpropanoid	Leaf	Japan	00.0007%	H10046
Erythronic acid, 2-o-caffeoyl-2-c-methyl-d: methyl ester	Phenylpropanoid	Leaf	Japan	00.000305%	H10046
Erythronic acid, 3-o-caffeoyl-2-c-methyl-d: methyl ester	Phenylpropanoid	Leaf	Japan	00.00065%	H10046
Erythrono-1-4-lactone, 3-o-caffeoyl-2-c-methyl-d:	Phenylpropanoid	Leaf	Japan	00.0015%	H10046
Friedelan-3-beta-ol	Triterpene	Aerial Parts	Switzerland	Not stated	K08422
Friedelin	Triterpene	Aerial Parts	Switzerland	Not stated	K08422
Germacrene d	Sesquiterpene	Leaf Essential Oil Leaf Essential Oil	Cameroon Japan	Not stated 73.00%	J16663 M31438
Hepta-1-3-5-triyn, 1-phenyl:	Benzenoid	Entire Plant Leaf Essential Oil Aerial Parts	USSR Cameroon China	Not stated Not stated 00.00127%	T11657 J16663 H23546
Hepta-2-4-6-triyn, 7-phenyl:	Benzenoid	Leaf	Canada	Not stated	T04807
Hoslundin, 5-o-methyl:	Flavonoid	Aerial Parts	England	Not stated	L09755
Inositol, l:	Carbohydrate	Leaf + Stem	France	Not stated	A14608

Compound	Chemical type	Plant Part	Plant Origin	Quantity	Ref #
Lauric acid	Lipid	Entire Plant	Egypt	Not stated	K08651
Limonene	Monoterpene	Leaf Essential Oil	Japan	10.00%	M31438
Linoleic acid	Lipid	Aerial Parts Entire Plant	Switzerland Taiwan	Not stated 00.00028%	K08422 H28235
Linoleic acid ethyl ester	Lipid	Entire Plant	Taiwan	00.00073%	H28235
Linolenic acid	Lipid	Aerial Parts Entire Plant	Switzerland Taiwan	Not stated 00.00033%	K08422 H28235
Linolenic acid methyl ester	Lipid	Entire Plant	Taiwan	00.0007%	H28235
Lupeol	Triterpene	Entire Plant	Egypt	00.005%	K08651
Lupeol acetate	Triterpene	Entire Plant	Egypt	00.006%	K08651
Luteolin	Flavone	Aerial Parts	China	00.00027%	H23546
Muurolool, t:	Sesquiterpene	Leaf Essential Oil	Japan	11.00%	M31438
Myristic acid	Lipid	Entire Plant	Egypt	Not stated	K08651
Okanin-3'-4'-diglucoside	Flavonoid	Flowers	Germany	00.01%	M22213
Okanin-3'-glucoside	Flavonoid	Flowers	Germany	00.102%	M22213
Okanin-3'-o-beta-d-glucoside	Flavonoid	Leaf	Germany(cul t)	00.00840%	T14184
Okanin-4'-(6"-o-acetyl)-glucoside	Flavonoid	Flowers	Germany	00.012%	M22213
Okanin-4'-diglucoside	Flavonoid	Flowers	Germany	00.046%	M22213
Okanin-4'-glucoside	Flavonoid	Flowers	Germany	00.02%	M22213
Okanin-4'-o-beta-d-(2"-4"-6"-tri acetyl)-glucoside	Flavonoid	Leaf	Germany(cul t)	00.01760%	T14184
Okanin-4'-o-beta-d-(2"-4"-diacetyl-6"-trans-para- coumaroyl)-glucoside	Flavonoid	Leaf	Germany	Not stated	M17399

Compound	Chemical type	Plant Part	Plant Origin	Quantity	Ref #
Okanin-4'-o-beta-d-(3''-4''-diacetyl-6''-trans-para-coumaroyl)-glucoside	Flavonoid	Leaf	Germany	Not stated	M17399
Okanin-4'-o-beta-d-(4''-acetyl-6''-trans-para-coumaroyl)-glucoside	Flavonoid	Leaf	Germany	Not stated	M17399
Okanin-4'-o-beta-d-(6''-trans-para-coumaroyl)-glucoside	Flavonoid	Leaf	Germany(cult)	00.00210%	T14184
Okanin-4'-o-beta-d-glucopyranoside	Flavonoid	Leaf	Japan	00.00065%	H07457
Okanin-4-methyl ether 3'-o-beta-d-glucoside	Flavonoid	Leaf	Germany	00.00460%	M18081
Okanin,iso: 7-o-beta-d-(2''-4''-6'' flavone -triacetyl)-glucopyranoside		Aerial Parts	China	00.001%	H23546
Okanin-4'-o-beta-d-(3''-4''-6''-tri acetyl)-glucopyranoside	Flavonoid	Aerial Parts	China	00.00027%	H23546
Okanin-4'-o-beta-d-(4''-6''-diacetyl)- glucopyranoside	Flavonoid	Aerial Parts	China	00.000909%	H23546
Palmitic acid	Lipid	Entire Plant	Egypt	Not stated	K08651
Palmitoleic acid	Lipid	Entire Plant	Egypt	Not stated	K08651
Phenylacetylene		Root	Brazil	Not stated	AE1006
Phenylhepta-1-3-5-triyne	Benzenoid	Flower + Fruit + Leaf Entire Plant	France Mexico	Not stated 00.00370%	T14775 H20010
Phenylheptatriyne	Benzenoid	Aerial Parts Leaf Entire Plant	Switzerland Canada Not Stated	Not stated Not stated Not stated	K08422 N16264 N06661
Phenyl-1, 3-diyn-5-en-7-ol-acetate, 1:		Root	Brazil	Not stated	J11673
Phenyl-1-hepta-1-3-5-triyne	Benzenoid	Entire Plant	Taiwan	00.00064%	H28235
Phenyl-1-hepta-cis-5-ene-1-3-diyne	Benzenoid	Entire Plant	Taiwan	00.00008%	H28235
Phenylethanol, 2:	Benzenoid	Entire Plant	Taiwan	00.00037%	H28235
Phytenoic acid	Lipid	Entire Plant	Taiwan	00.0002%	H28235

Compound	Chemical type	Plant Part	Plant Origin	Quantity	Ref #
Phytol	Diterpene	Entire Plant	Taiwan	00.0007%	H28235
Phytol heptanoate	Diterpene	Leaf	Philippines	Not stated	H16059
Pilosola a	Benzenoid	Entire Plant	Taiwan	00.00053%	H28235
Precocene I	Oxygen heterocycle	Leaf Essential Oil	Cameroon	Not stated	J16663
Pyranose, beta-d-glucose	Flavonoid	Root	Brazil	Not stated	AE1006
Pyranose, alpha-l-rhamnopyranosyl-(1-6)-beta-d-gluco:	Flavonoid	Root	Brazil	Not stated	AE1006
Quercetin-3-3'-dimethyl ether-7-o-alpha-l-rhamnopyranosyl-(1-6)-beta-d-gluco-pyranoside	Flavonol	Root	Brazil	00.0056%	H22078
Quercetin-3-3'-dimethyl ether-7-o-beta-d-glucopyranoside	Flavonol	Root	Brazil	00.00116%	H22078
Quercetin-3-4'-dimethyl ether 7-o-rutinoside	Flavonol	Aerial Parts	China	00.00072%	H23546
Quercitrin, iso:	Flavonol	Leaf	Japan	00.0012%	H07457
Sandaracopimara-8(14)-15-diene-7-alpha-18-diol	Diterpene	Leaf	Rwanda	Not stated	K17419
Sitosterol, beta:	Steroid	Entire Plant	Taiwan	00.00071%	H28235
Squalene	Triterpene	Leaf Entire Plant	Philippines Taiwan	Not stated 00.00075%	H16059 H28235
Stigmasterol	Steroid	Leaf Entire Plant	Philippines Taiwan	Not stated 00.00071%	H16059 H28235
Stigmast-7-en-3-beta-ol, 5-alpha:	Steroid	Entire Plant	Taiwan	00.00004%	H28235
Stigmasta-7-22-dien-3-beta-ol, 5-alpha:	Steroid	Entire Plant	Taiwan	00.00017%	H28235
Tannic acid	Tannin	Aerial Parts	Cuba	Not stated	L18036
Tetradec-trans-6-ene-8-10-12-triyn-3-hydroxy: beta-d-glucopyranosyl-oxy	Alkenynol c5 or more	Entire Plant	Mexico	00.01058%	H20010
Tetradec-trans-6-ene-8-10-12-triyn-3-hydroxy: 3-beta-d-glucopyranosyl-oxy-1-hydroxy:	Alkenynol c5 or more	Aerial Parts	USA-FL	Not stated	L08341

Compound	Chemical type	Plant Part	Plant Origin	Quantity	Ref #
Tocopherolquinone, alpha:	Quinoid	Entire Plant	Taiwan	00.000355	H28235
Tridec-5-ene-7-9-11-triyn-3-ol	Alkenynol c5 or more	Root	Egypt	Not stated	K08651
Trideca-2-12-diene-4-6-8-10-tetrayn -1-ol	Alkenynol c5 or more	Root	Egypt	Not stated	K08651
Trideca-3-11-diene-5-7-9-triyn-1-2 -diol	Alkenynol c5 or more	Root	Egypt	Not stated	K08651
Trideca-trans-ene-3-5-7-tetrayne-1-2-diol 2-o-beta-glucoside	Alkenynol c5 or more	Leaf	Brazil	Not stated	L04335
Tridec-trans-5-ene-7-9-11-triyn, 2-beta-d-gluco-pyranosyl-oxy-1-hydroxy	Alkenynol c5 or more	Aerial Parts	USA-FL	Not stated	L08341
Tridecapentayn-1-ene	Alkenyne c5 or more	Root	Egypt	Not stated	K08651
Vanillic acid	Benzenoid	Aerial Parts	England	Not stated	L09755

PHYTOCHEMICAL SCREENING

ALKALOIDS ABSENT	AERIAL PARTS	J08936
	FRUIT	J08936
ALKALOIDS PRESENT	LEAF	L16047

Biological Activities for Extracts of Picao preto (*Bidens pilosa*)

IN VIVO RESEARCH

Plant Part - Origin	Activity Tested For	Type Extract	Model	Dosage	Result	Notes/Organism tested	Ref #
Root Rwanda	Toxic Effect (general)	MEOH Ext	IP Mouse	1.0 gm/kg	Inactive		T08870
Stem Rwanda	Toxic Effect (general)	MEOH Ext	IP Mouse	1.0 gm/kg	Inactive		T08870
Stem Rwanda	Uterine Stimulant Effect	MEOH Ext	Guinea Pig	500.0 mcg/ml	Weak Activity	Uterus (non-preg).	T08870
Root Rwanda	Uterine Stimulant Effect	MEOH Ext	Guinea Pig	500.0 mcg/ml	Weak Activity	Uterus (non-preg).	T08870
Leaf Rwanda	Uterine Stimulant Effect	MEOH Ext	Guinea Pig	500.0 mcg/ml	Weak Activity	Uterus (non-preg).	T08870
Leaf USA	Carcinogenic Activity	Leaves	PO Rat	50.0 gm/kg	Weak Activity	Animals were given 3 weekly IP injections of 25 mg methyl-n-amyl nitrosamine. Incidence of esophageal tumors was measured.	T09444
Leaf South Africa	Carcinogenic Activity	Leaf	PO Rat	50 g/kg	Active Inactive	Increased esophageal papilloma induced by methyl-n-amyl nitrosamine. Did not induce tumors without the chemical stimulus methyl-n-amyl nitrosamine.	AE1012
Not Stated Taiwan	Hepatoprotective Activity	Not Stated	PO Rat	Not stated	Active	Protected against CCl ₄ - and acetaminophen-induced acute hepatic lesions. Reduced the increase in SGOT and SGPT.	AE1008
Entire Plant Brazil	Antimalarial Activity	BuOH Ext CHCl ₃ Ext ETOAC Ext ETOH(100%)Ext	Not Stated Mouse Mouse Not Stated	50.0 mcg/ml 1000 mg/kg 50.0 mcg/ml 1000 mg/kg	Weak Activity Equivocal Weak Activity Equivocal	<i>Plasmodium falciparum</i>	L15922
Leaf Brazil	Antimalarial Activity	BuOH Ext BuOH Ext CHCl ₃ Ext Ether Ext ETOH(100%)Ext	Not Stated Mouse Not Stated Not Stated Not Stated	50.0 mcg/ml 1000 mg/kg 50.0 mcg/ml 50.0 mcg/ml 50.0 mcg/ml	Weak Activity Equivocal Active Inactive Weak Activity	<i>Plasmodium falciparum</i>	L15922

Plant Part - Origin	Activity Tested For	Type Extract	Model	Dosage	Result	Notes/Organism tested	Ref #
Root Brazil	Antimalarial Activity	BuOH Ext CHCl3 Ext Fraction Ext Ether Ext ETOH(100%)Ext ETOH(100%)Ext H2O Ext	Not Stated Not Stated Not Stated Not Stated Not Stated Mouse Not Stated	50.0 mcg/ml 50.0 mcg/ml 50.0 mcg/ml 50.0 mcg/ml 50.0 mcg/ml 1000 mg/kg 50.0 mcg/ml	Active Active Weak Activity Inactive Active Inactive Weak Activity	<i>Plasmodium falciparum</i>	L15922
Stem Brazil	Antimalarial Activity	CHCl3 Ext CHCl3 Ext ETOH(100%)Ext Ether Ext	Not Stated Mouse Mouse Not Stated	50.0 mcg/ml 1000 mg/kg 1000 mg/kg 50.0 mcg/ml	Weak Activity Inactive Active Inactive	<i>Plasmodium falciparum</i>	L15922
Whole Plant Brazil	Antimalarial Activity	ETOH Ext	Mice	1,000 mg/kg	Active	43% reduction in parasitaemia (<i>Plasmodium berghei</i>).	AE1006
Root Brazil	Antimalarial Activity	ETOH Ext	Mice	500 mg/kg	Active	Plants were collected in 3 different areas. All 3 plants exhibited a 43-66% reduction in parasitaemia (<i>Plasmodium berghei</i>).	AE1006
Entire Plant Mexico	Hypoglycemic Activity	H2O Ext	Oral Rabbit	4.0 mg/kg	Equivocal	vs. glucose-induced hyperglycemia.	L03570
Entire Plant Mexico	Hypoglycemic Activity	H2O Ext	GI Mouse IP Mouse	Not stated Not stated	Active Active	vs. alloxan-induced hyperglycemia.	T08848
Entire Plant Egypt	Hypoglycemic Activity	CHCl3 Ext ETOAC Ext H2O Ext	IP Rat IP Rat IP Rat	400.0 mg/kg 400.0 mg/kg 400.0 mg/kg	Inactive Active Active	vs. alloxan-induced hyperglycemia.	K08651
Aerial Parts USA	Hypoglycemic Activity	ETOH(90%)Ext	PO Mouse	1.0 gm/kg	Active		L08341
Leaf Cameroon	Hypoglycemic Activity	MEOH Ext	IP Rat	Not stated	Active	Reduced elevated plasma insulin levels induced by high-fructose diet.	AE1004
Not Stated Mexico	Hypoglycemic Activity	H2O-ETOH Ext	IP Mice	Not Stated	Active	Reduced glycemia in healthy mice by 13.8% after 240 minutes.	AE1005
Not Stated Mexico	Hypoglycemic Activity	H2O-ETOH Ext	IP Mice	Not Stated	Active	Reduced glycemia in alloxan-diabetic mice by 22.7% at 240 minutes.	AE1005
Leaf Cameroon	Hypoglycemic Activity	H2O Ext CH2Cl2 Ext	Oral Rat	150-350 mg/kg 150-300 mg/kg	Inactive Inactive	No effect on plasma insulin and glucose in rats fed high-fructose diets.	L15529
Entire Plant Egypt	Hyperglycemic Activity	PetroleumExt	IP Rat	400.0 mg/kg	Active	The hyperglycemic effect of alloxan was enhanced 39% with treatment. vs. alloxan-induced hyperglycemia.	K08651

Plant Part - Origin	Activity Tested For	Type Extract	Model	Dosage	Result	Notes/Organism tested	Ref #
Leaf Cameroon	Hypotensive Activity	H2O Ext CH2Cl2 Ext	PO Rat	150-350 mg/kg 150-300 mg/kg	Active Active	Reversed high blood pressure induced by high-fructose diets.	L15529
Leaf Cameroon	Hypotensive Activity	MEOH Ext	PO Rat	75.0 mg/kg 75.0 mg/kg Not Stated	Active Active Weak Activity	In spontaneously hypertensive rats. In salt-loading hypertensive rats. In normotensive rats. No changes in heart rate and urine volume.	L05008
Leaf Cameroon	Hypotensive Activity	MEOH Ext	PO Rat	Not stated	Active	Prevented hypertension induced by high-fructose diets and lowered elevated blood pressure levels.	AE1004
Leaf Rwanda	Hypertensive Activity	MEOH Ext	IV Rabbit	5.0 mg/kg	Inactive		T08870
Leaf Rwanda	Hypotensive Activity	MEOH Ext	IV Rabbit	5.0 mg/kg	Inactive		T08870
Leaf Cameroon	Hypotensive Activity	MEOH Ext	PO Rat	75.0 mg/kg	Equivocal		L05008
Root Rwanda	Hypotensive Activity	MEOH Ext	IV Rabbit	5.0 mg/kg	Active		T08870
Stem Rwanda	Hypotensive Activity	MEOH Ext	IV Rabbit	5.0 mg/kg	Active		T08870
Leaf Cameroon	Hypotriglyceridemic Activity	H2O Ext CH2Cl2 Ext	PO Rat	150-350 mg/kg 150-300 mg/kg	Active Active	Reversed hypertriglyceridemia induced by high-fructose diets.	L15529
Leaf Cameroon	Hypocholesterolemic Activity	H2O Ext CH2Cl2 Ext	PO Rat	150-350 mg/kg 150-300 mg/kg	Inactive Inactive	Plasma cholesterol levels increased slightly.	L15529
Leaf Cameroon	Creatinine Lowering Effect	H2O Ext CH2Cl2 Ext	PO Rat	150-350 mg/kg 150-300 mg/kg	Active Active	Reduced plasma creatinine in rats fed high-fructose diets.	L15529
Leaf Brazil	Anti-inflammatory Activity	MEOH Ext	IP Mouse	10.0 mg	Active	vs. zymosan-induced pedal edema.	L04335
Leaf Brazil	Anti-inflammatory Activity	MEOH Ext	IP Mice	10 mg	Active Active	Reduce the size of the popliteal lymph node after inflammation induced by zymosan. Reduced foot pad inflammation induced by zymosan.	L04335
Not Stated Taiwan	Anti-inflammatory Activity	H2O Ext	IM Rat	150 mg/kg 300 mg/kg 500 mg/kg	Active Active Active	vs. paw edema induced by carrageenan. vs. paw edema induced by carrageenan. vs. chronic arthritis induced by complete Freund's adjuvant.	AE1011

Plant Part - Origin	Activity Tested For	Type Extract	Model	Dosage	Result	Notes/Organism tested	Ref #
Entire Plant Cuba	Antiulcer Activity	ETOH(100%)Ext	PO Rat	0.5 gm/kg 0.5 gm/kg 2 gm/kg	Active Active Active	vs. indomethacin-induced ulcers. vs. 80% ethanol-induced ulcers. Inhibited hemorrhagic lesions induced by ethanol.	L06781
Leaf Cameroon	Antiulcer Activity	CH2Cl2 Ext CH2Cl2 Ext CH2Cl2 Ext CH2Cl2 Ext Cyclohexane MEOH Ext	PO Rat	1000 mg/kg 750.0 mg/kg 750.0 mg/kg 750.0 mg/kg 1000 mg/kg 1000 mg/kg	Inactive Active Inactive Inactive Active Active	vs. pylorus ligation-induced ulcers. vs. HCl/ethanol-induced gastric ulcers. vs. 80% ethanol-induced ulcers. vs. pylorus ligation-induced ulcers. vs. HCl/ethanol-induced gastric ulcers. vs. HCl/ethanol-induced gastric ulcers.	L12395
Leaf + Stem Cuba	Antiulcer Activity	H2O Ext	GI Rat	Not stated	Active		T11836
Entire Plant Cuba	Antisecretory Effect	ETOH(100%)Ext	IP Rat	0.5 gm/kg	Active	Decreased the gastric juice volume, acid secretion and pepsin secretion. vs. pylorus ligation.	L06781
Leaf Rwanda	Skeletal Muscle Relaxant Effect	MEOH Ext	Toad	500 mcg/ml	Inactive	Muscle (rectus abdominus).	T08870
Root Rwanda	Skeletal Muscle Relaxant Effect	MEOH Ext	Toad	500 mcg/ml	Inactive	Muscl e(rectus abdominus).	T08870
Stem Rwanda	Skeletal Muscle Relaxant Effect	MEOH Ext	Toad	500 mcg/ml	Inactive	Muscle (rectus abdominus).	T08870
Leaf Rwanda	Skeletal Muscle Stimulant Activity	MEOH Ext	Toad	500.0 mcg/ml	Inactive	Muscle (rectus abdominus).	T08870
Leaf Rwanda	Smooth Muscle Stimulant Activity	MEOH Ext	Guinea Pig	500.0 mcg/ml	Inactive	Ileum.	T08870
Root Rwanda	Skeletal Muscle Stimulant Activity	MEOH Ext	Toad	500.0 mcg/ml	Inactive	Muscle (rectus abdominus).	T08870
Stem Rwanda	Smooth Muscle Stimulant Activity	MEOH Ext	Guinea Pig	500.0 mcg/ml	Inactive	Ileum.	T08870
Root Rwanda	Smooth Muscle Stimulant Activity	MEOH Ext	Guinea Pig	500.0 mcg/ml	Inactive	Ileum.	T08870
Stem Rwanda	Skeletal Muscle Stimulant Activity	MEOH Ext	Toad	500.0 mcg/ml	Inactive	Muscle(rectus abdominus).	T08870
Leaf Rwanda	Smooth Muscle Relaxant Activity	MEOH Ext	Guinea Pig	500 mcg/ml	Inactive	Ileum.	T08870

Plant Part - Origin	Activity Tested For	Type Extract	Model	Dosage	Result	Notes/Organism tested	Ref #
Stem Rwanda	Smooth Muscle Relaxant Activity	MEOH Ext	Guinea Pig	500 mcg/ml	Inactive	Ileum.	T08870
Root Rwanda	Smooth Muscle Relaxant Activity	MEOH Ext	Guinea Pig	500 mcg/ml	Inactive	Ileum.	T08870
Leaf Cameroon	Smooth Muscle Relaxant Activity	H2O Ext	Rat aorta	8.0 mg/ml	Active Active	vs. calcium-induced contractions. vs. norepinephrine-induced contractions.	J19693
Aerial Parts Japan	Radioprotective Effect	MEOH Ext	IP Mouse	1000 mg/kg	Active	vs. radiation-induced skin injury.	K29839
Not Stated Nigeria	Neurotoxin Inhibiting Activity	Not Stated	Mice	Not stated	Active	Potentiated the antivenom Ipser Afrique which is used against two deadly venoms - Dendroaspis jamesoni (neurotoxin containing venom) and Echis oceliatus.	AE1007

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Entire Plant Papua-New Guinea	Antibacterial Activity	ETOH(100%)Ext	Agar Plate	4.0 mg	Equivocal	<i>Bacillus subtilis</i> <i>Escherichia coli</i> <i>Micrococcus roseus</i> <i>Salmonella typhi</i> <i>Salmonella typhimurium</i> <i>Staphylococcus albus</i> <i>Staphylococcus aureus</i> <i>Staphylococcus epidermidis</i> <i>Agrobacterium tumefaciens</i> <i>Bacillus cereus</i> <i>Bacillus coagulans</i> <i>Bacillus megaterium</i> <i>Citrobacter freundii</i> <i>Enterobacter aerogenes</i> <i>Klebsiella pneumoniae</i> <i>Lactobacillus casei</i> <i>Micrococcus luteus</i> <i>Neisseria gonorrhoea</i> <i>Proteus mirabilis</i> <i>Proteus vulgaris</i> <i>Pseudomonas aeruginosa</i> <i>Serratia marcescens</i> <i>Streptococcus faecalis</i> <i>Streptococcus pneumoniae</i>	L18469
Entire Plant Papua-New Guinea	Antibacterial Activity	CH2Cl2 Ext	Agar Plate	4.0 mg	Equivocal	<i>Agrobacterium tumefaciens</i> <i>Bacillus cereus</i> <i>Bacillus coagulans</i> <i>Bacillus megaterium</i> <i>Bacillus subtilis</i> <i>Citrobacter freundii</i> <i>Enterobacter aerogenes</i> <i>Escherichia coli</i> <i>Lactobacillus casei</i> <i>Micrococcus luteus</i> <i>Micrococcus roseus</i> <i>Neisseria gonorrhoea</i> <i>Proteus mirabilis</i> <i>Proteus vulgaris</i> <i>Pseudomonas aeruginosa</i> <i>Salmonella typhi</i> <i>Salmonella typhimurium</i>	L18469

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Entire Plant Papua-New Guinea	Antibacterial Activity	CH ₂ Cl ₂ Ext	Agar Plate	4.0 mg	Equivocal	<i>Serratia marcescens</i> <i>Staphylococcus albus</i> <i>Staphylococcus aureus</i> <i>Staphylococcus epidermidis</i> <i>Streptococcus faecalis</i> <i>Streptococcus pneumoniae</i> <i>Klebsiella pneumoniae</i>	L18469
Entire Plant Papua-New Guinea	Antibacterial Activity	ETOAC Ext	Agar Plate	4.0 mg	Equivocal	<i>Agrobacterium tumefaciens</i> <i>Bacillus cereus</i> <i>Bacillus coagulans</i> <i>Bacillus megaterium</i> <i>Bacillus subtilis</i> <i>Citrobacter freundii</i> <i>Enterobacter aerogenes</i> <i>Klebsiella pneumoniae</i> <i>Lactobacillus casei</i> <i>Micrococcus luteus</i> <i>Micrococcus roseus</i> <i>Neisseria gonorrhoea</i> <i>Proteus mirabilis</i> <i>Proteus vulgaris</i> <i>Pseudomonas aeruginosa</i> <i>Salmonella typhi</i> <i>Salmonella typhimurium</i> <i>Serratia marcescens</i> <i>Staphylococcus albus</i> <i>Staphylococcus aureus</i> <i>Staphylococcus epidermidis</i> <i>Streptococcus faecalis</i> <i>Streptococcus pneumoniae</i> <i>Escherichia coli</i>	L18469
Entire Plant Papua-New Guinea	Antibacterial Activity	Petrol(gasoline)	Agar Plate	4.0 mg	Equivocal	<i>Agrobacterium tumefaciens</i> <i>Bacillus cereus</i> <i>Bacillus coagulans</i> <i>Bacillus megaterium</i> <i>Bacillus subtilis</i> <i>Citrobacter freundii</i> <i>Enterobacter aerogenes</i> <i>Escherichia coli</i>	L18469

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Entire Plant Papua-New Guinea	Antibacterial Activity	Petrol (gasoline)	Agar Plate	4.0 mg	Inactive Inactive Inactive Inactive Inactive Inactive Inactive Inactive Inactive Inactive Inactive Inactive Inactive Inactive Inactive Inactive	<i>Klebsiella pneumoniae</i> <i>Lactobacillus casei</i> <i>Micrococcus luteus</i> <i>Micrococcus roseus</i> <i>Neisseria gonorrhoea</i> <i>Proteus vulgaris</i> <i>Pseudomonas aeruginosa</i> <i>Salmonella typhi</i> <i>Salmonella typhimurium</i> <i>Serratia marcescens</i> <i>Staphylococcus albus</i> <i>Staphylococcus aureus</i> <i>Staphylococcus epidermidis</i> <i>Streptococcus faecalis</i> <i>Streptococcus pneumoniae</i> <i>Proteus mirabilis</i>	L18469
Leaf Ethiopia	Antibacterial Activity	Acid-ETOH Ext	Agar Plate	0.20 ml	Strong Activity Strong Activity Strong Activity Strong Activity Strong Activity Strong Activity Strong Activity Strong Activity Strong Activity Strong Activity Strong Activity Strong Activity Strong Activity Strong Activity Strong Activity Strong Activity Strong Activity	<i>Escherichia coli</i> <i>Escherichia coli</i> <i>Klebsiella pneumoniae</i> <i>Klebsiella pneumoniae</i> <i>Klebsiella pneumoniae</i> <i>Proteus vulgaris</i> <i>Proteus vulgaris</i> <i>Proteus vulgaris</i> <i>Proteus vulgaris</i> <i>Proteus vulgaris</i> <i>Pseudomonas aeruginosa</i> <i>Salmonella gallinarum</i> <i>Salmonella gallinarum</i> <i>Salmonella gallinarum</i> <i>Salmonella gallinarum</i> <i>Staphylococcus albus</i> <i>Staphylococcus albus</i>	K21091
Leaf Ethiopia	Antibacterial Activity	H2O Ext	Agar Plate	0.20 ml	Strong Activity Strong Activity Strong Activity	<i>Klebsiella pneumoniae</i> <i>Proteus vulgaris</i> <i>Staphylococcus albus</i>	K21091
Leaf Ethiopia	Antibacterial Activity	Acid-ETOH Ext	Agar Plate	0.20 ml	Active Active Active Active	<i>Pseudomonas aeruginosa</i> <i>Staphylococcus albus</i> <i>Pseudomonas aeruginosa</i> <i>Salmonella gallinarum</i>	K21091
Leaf Ethiopia	Antibacterial Activity	Acid-ETOH Ext	Agar Plate	0.20 ml	Inactive Inactive	<i>Escherichia coli</i> <i>Klebsiella pneumoniae</i>	K21091

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Flowers Guatemala	Antibacterial Activity	ETOH-H2O (50%) Ext	Agar Plate	50.0 microliters	Inactive	<i>Escherichia coli</i> <i>Salmonella typhosa</i> <i>Shigella flexneri</i>	K24899
Flowers Trinidad	Antibacterial Activity	ETOAC Ext	Agar Plate	1000 mcg/ml	Equivocal Equivocal Inactive Inactive Inactive Inactive	<i>Salmonella typhimurium</i> <i>Staphylococcus aureus</i> <i>Escherichia coli</i> <i>Pseudomonas aeruginosa</i> <i>Staphylococcus epidermidis</i> <i>Streptococcus faecalis</i>	L13922
Leaf Brazil	Antibacterial Activity	ETOH(100%)Ext	Agar Plate	233.0 mg/ml	Inactive	<i>Bacillus corineforme.</i> <i>Citrobacter freundii</i> <i>Enterococcus species</i> <i>Escherichia coli</i> <i>Proteus vulgaris</i> <i>Pseudomonas aeruginosa</i> <i>Staphylococcus aureus</i> <i>Streptococcus hemolyticus</i> <i>Streptococcus viridans</i>	L10331
Leaf Rwanda	Antibacterial Activity	ETOH(80%) Ext	Agar Plate	0.2 ml	Active	<i>Pseudomonas aeruginosa</i>	K27812
Leaf Rwanda	Antibacterial Activity	MEOH Ext	Agar Plate	50.0 mg/ml	Active Active Active Inactive	<i>Bacillus subtilis</i> <i>Salmonella gallinarum</i> <i>Staphylococcus aureus</i> <i>Pseudomonas aeruginosa</i>	M25480
Leaf Rwanda	Antimycobacterial Activity	ETOH(95%)Ext	Agar Plate	0.1 mg/ml 0.1 mg/ml 0.1 mg/ml 0.5 mg/ml 0.5 mg/ml 0.5 mg/ml 1.0 mg/ml 1.0 mg/ml 1.0 mg/ml	Inactive Inactive Inactive Active Inactive Inactive Active Inactive Inactive	<i>Mycobacterium avium</i> <i>Mycobacterium simiae</i> <i>Mycobacterium tuberculosis</i> <i>Mycobacterium tuberculosis</i> <i>Mycobacterium avium</i> <i>Mycobacterium simiae</i> <i>Mycobacterium tuberculosis</i> <i>Mycobacterium avium</i> <i>Mycobacterium simiae</i>	K17419
Leaf Rwanda	Antimycobacterial Activity	MEOH Ext	Agar Plate	50.0 mg/ml	Active	<i>Mycobacterium smegmatis</i>	M25480
Whole Plant Brazil	Antimalarial Activity	ETOH Ext BuOH Ext	in vitro	50 ug/ml 50 ug/ml	Active Active	90% inhibition of <i>P. falciparum.</i> 90% inhibition of <i>P. falciparum.</i>	AE1006

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Leaf Brazil	Antimalarial Activity	ETOH Ext BuOH Ext CHCl3 Ext	in vitro	50 ug/ml 50 ug/ml 50 ug/ml	Active	90% inhibition of <i>P. falciparum</i> . 79% inhibition of <i>P. falciparum</i> . 94% inhibition of <i>P. falciparum</i> .	AE1006
Root Brazil	Antimalarial Activity	ETOH Ext BuOH Ext CHCl3 Ext ETOH Ext ETOH Ext	in vitro	50 ug/ml 50 ug/ml 50 ug/ml 25 ug/ml 12.5 ug/ml	Active	90% inhibition of <i>P. falciparum</i> . 68% inhibition of <i>P. falciparum</i> . 86% inhibition of <i>P. falciparum</i> . 70% inhibition of <i>P. falciparum</i> . 49% inhibition of <i>P. falciparum</i> .	AE1006
Stem Brazil	Antimalarial Activity	CHCl3 Ext	in vitro	50 ug/ml	Active	47% inhibition of <i>P. falciparum</i> .	AE1006
Stem Brazil	Antimalarial Activity	CHCl3 Ext Ether Ext	Not stated Not stated	50.0 mcg/ml 50.0 mcg/ml	Weak Activity Weak Activity	<i>Plasmodium falciparum</i>	J11673
Root Brazil	Antimalarial Activity	BuOH Ext CHCl3 Ext ETOH(95%)Ext Ether Ext	Not stated	50.0 mcg/ml 50.0 mcg/ml 50.0 mcg/ml 50.0 mcg/ml	Weak Activity Inactive Weak Activity Inactive	<i>Plasmodium falciparum</i> (90% inhibition).	J11673
Leaf Brazil	Antimalarial Activity	BuOH Ext CHCl3 Ext Ether Ext ETOH(95%)Ext	Not stated	50.0 mcg/ml 50.0 mcg/ml 50.0 mcg/ml 50.0 mcg/ml	Weak Activity Inactive Inactive Weak Activity	<i>Plasmodium falciparum</i>	J11673
Entire Plant Brazil	Antimalarial Activity	ETOH(90%)Ext ETOH(95%)Ext	Not stated Not stated	20.0 mcg/ml 50.0 mcg/ml	Active Weak Activity	<i>Plasmodium falciparum</i>	J11673
Not stated Kenya	Antimalarial Activity	Decoction Decoction Decoction Decoction	Not stated	IC50=371.0 mcg/ml IC50=480.0 mcg/ml IC50=923.0 mcg/ml IC50=937.0 mcg/ml	Equivocal Equivocal Equivocal Equivocal	<i>Plasmodium falciparum</i> vs. chloroquine-resistant strains.	L13602
Not stated Kenya	Antimalarial Activity	ETOH(100%)Ext ETOH(100%)Ext ETOH(100%)Ext	Not stated	IC50=481.0 mcg/ml IC50=55.0 mcg/ml IC50=57.0 mcg/ml	Equivocal Active Active	<i>Plasmodium falciparum</i> vs. chloroquine-resistant strains.	L13602
Not stated Kenya	Antimalarial Activity	H2O Ext H2O Ext H2O Ext H2O Ext MEOH Ext MEOH Ext MEOH Ext MEOH Ext	Not stated	IC50=101.0 mcg/ml IC50=404.0 mcg/ml IC50=441.0 mcg/ml IC50=563.0 mcg/ml IC50=493.0 mcg/ml IC50=504.0 mcg/ml IC50=858.0 mcg/ml IC50=961.0 mcg/ml	Equivocal Equivocal Equivocal Equivocal Equivocal Equivocal Equivocal Equivocal	<i>Plasmodium falciparum</i> vs. chloroquine-resistant strains.	L13602

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Not stated Kenya	Antimalarial Activity	Pet ether Ext Pet ether Ext Pet ether Ext Pet ether Ext	Not stated	IC50=149.0 mcg/ml IC50=250.0 mcg/ml IC50=253.0 mcg/ml IC50=490.0 mcg/ml	Equivocal Equivocal Equivocal Equivocal	<i>Plasmodium falciparum</i> vs. chloroquine-resistant strains.	L13602
Stem Cuba	Antifungal Activity	Acetone Ext ETOH(95%)Ext H2O Ext	Agar Plate Agar Plate Agar Plate	50% 50% 50%	Inactive Inactive Inactive	<i>Neurospora crassa</i>	T08589
Aerial Parts Panama	Antifungal Activity	CHCl3 Ext H2O Ext MEOH Ext	Agar Plate Agar Plate Agar Plate	100.0 mcg 100.0 mcg 100.0 mcg	Inactive Inactive Inactive	<i>Cladosporium cucumerinum</i>	K11142 K11142 K11142
Root Panama	Antifungal Activity	CHCl3 Ext H2O Ext MEOH Ext	Agar Plate Agar Plate Agar Plate	100.0 mcg 100.0 mcg 100.0 mcg	Inactive Inactive Inactive	<i>Cladosporium cucumerinum</i>	K11142
Entire Plant Mexico	Antifungal Activity	Not stated	Agar Plate	Not stated MIC=100.0 mcg/ml MIC=125.0 mcg/ml MIC=62.0 mcg/ml	Inactive Inactive Inactive Weak Activity	<i>Microsporum gypseum</i> <i>Trichophyton mentagrophytes</i> <i>Microsporum gypseum</i> <i>Trichophyton mentagrophytes</i>	H20010
Entire Plant Papua-New Guinea	Antifungal Activity	CH2Cl2 Ext CH2Cl2 Ext ETOAC Ext ETOAC Ext ETOH(100%)Ext ETOH(100%)Ext Petrol(gasoline) Petrol(gasoline)	Agar Plate	Not stated	Inactive Inactive Inactive Inactive Inactive Inactive Inactive Inactive	<i>Aspergillus niger</i> <i>Trichophyton mentagrophytes</i> <i>Aspergillus niger</i> <i>Trichophyton mentagrophytes</i> <i>Aspergillus niger</i> <i>Trichophyton mentagrophytes</i> <i>Aspergillus niger</i> <i>Trichophyton mentagrophytes</i>	L18469
Leaf Cuba	Antifungal Activity	Acetone Ext ETOH(95%)Ext H2O Ext	Agar Plate	50% 50% 50%	Inactive Inactive Inactive	<i>Neurospora crassa</i>	T08589
Entire Plant Egypt	Antiyeast Activity	CHCl3 Ext ETOAC Ext ETOH(95%)Ext Petroleum	Agar Plate	30.0 mcg	Active Inactive Inactive Active	<i>Candida albicans</i>	K08651
Root Panama	Antiyeast Activity	CHCl3 Ext H2O Ext MEOH Ext	Agar Plate Agar Plate Agar Plate	100.0 mcg 100.0 mcg 100.0 mcg	Weak Activity Inactive Inactive	<i>Candida albicans</i>	K11142

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Aerial Parts Panama	Antiyeast Activity	CHCl3 Ext H2O Ext MEOH Ext	Agar Plate	100.0 mcg	Inactive	<i>Candida albicans</i>	K11142
Entire Plant Papua-New Guinea	Antiyeast Activity	CH2Cl2 Ext CH2Cl2 Ext ETOAC Ext ETOAC Ext ETOH(100%)Ext ETOH(100%)Ext Petrol(gasoline) Petrol(gasoline)	Agar Plate	Not stated	Inactive	<i>Candida albicans</i> <i>Candida tropicalis</i> <i>Candida albicans</i> <i>Candida tropicalis</i> <i>Candida albicans</i> <i>Candida tropicalis</i> <i>Candida albicans</i> <i>Candida tropicalis</i>	L18469
Leaf Rwanda	Antiyeast Activity	MEOH Ext	Agar Plate	50.0 mg/ml	Active	<i>Candida albicans</i>	M25480
Leaf Ethiopia	Antiyeast Activity	H2O Ext	Agar Plate	0.20 ml	Strong Activity	<i>Candida albicans</i>	K21091
Leaf Ethiopia	Antiyeast Activity	ACID-ETOH Ext	Agar Plate	0.20 ml	Strong Activity Strong Activity	<i>Candida albicans</i>	K21091
Leaf Brazil	Antiviral Activity	MEOH(75%)Ext MEOH(75%)Ext MEOH(75%)Ext MEOH(75%)Ext MEOH(75%)Ext	Cell Culture	Not stated ED50=200 mcg/ml ED50=250 mcg/ml ED50=500 mcg/ml LD50=500 mcg/ml	Inactive Inactive Inactive Inactive Inactive	Virus - <i>Adenovirus</i> (unspec) Virus - <i>Herpes simplex 1</i> Virus - <i>Herpes simplex 2</i> Virus - <i>Poliovirus ii</i> Virus - <i>Vesicular stomatitis</i>	L05437
Entire Plant China	Antiviral Activity	ETOH(90%)Ext ETOH(90%)Ext	Cell Culture Cell Culture	MIC=125.0 mcg/ml MIC=65.0 mcg/ml	Weak Activity Weak Activity	Virus- <i>Cytomegalovirus</i> Virus- <i>Sindbis</i>	M28528
Aerial Parts Panama	Antiviral Activity	H2O Ext	Agar Plate	100.0 mcg/ml	Inactive	Virus - <i>Herpes simplex 1</i>	K28424
Leaf Rwanda	Antiviral Activity	ETOH(80%) Ext	Cell Culture	0.2 ml	Inactive	<i>Virus-coxsackie</i> <i>Virus-herpes</i> (unspec) <i>Virus-measles</i> <i>Virus-poliovirus</i> (unspec) <i>Virus-semlicki-forest</i>	K27812
Flowers South Africa	Antiamebic Activity	ETOH(100%)Ext H2O Ext	Not stated Not stated	Not stated IC50=>5.0 mg/ml	Inactive Inactive	<i>Entamoeba histolytica</i> <i>Entamoeba histolytica</i>	L16048
Aerial Parts Brazil	Antitrypanosomal Activity	ETOH(95%)Ext	Not stated	2.5 mg/ml	Inactive	<i>Trypanosoma cruzi</i>	K24859

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Entire Plant Papua-new Guinea	Antitrichomonal Activity	CH ₂ Cl ₂ Ext ETOAC Ext ETOH(100%)Ext Petrol(gasoline)	Agar Plate	4.0 mg	Equivocal Equivocal Inactive Equivocal	<i>Trichomonas vaginalis</i>	L18469
Seed Kenya	Molluscicidal Activity	H ₂ O Ext	Not stated	Not stated	Inactive	<i>Biomphalaria pfeifferi</i>	T14178
Stem Kenya	Molluscicidal Activity	H ₂ O Ext	Not stated	Not stated	Weak Activity	<i>Biomphalaria pfeifferi</i>	T14178
Aerial Parts Panama	Molluscicidal Activity	H ₂ O Ext	Not stated	400.0 ppm	Inactive	<i>Biomphalaria glabrata</i>	K29051
Leaf Kenya	Molluscicidal Activity	H ₂ O Ext	Not stated	Not stated	Weak Activity	<i>Biomphalaria pfeifferi</i>	T14178
Entire Plant Puerto Rico	Molluscicidal Activity	H ₂ O slurry	Not stated	LD100 >1m ppm LD100 >1m ppm	Inactive Inactive	<i>Lymnaea columella</i> <i>Lymnaea cubensis</i>	T04621
Flowers Kenya	Molluscicidal Activity	H ₂ O Ext	Not stated	Not stated	Weak Activity	<i>Biomphalaria pfeifferi</i>	T14178
Root Panama	Anticrustacean Activity	MEOH Ext	Not stated	LC50=38.0 mcg/ml	Active	<i>Artemia salina</i> assay system is intended to predict for antitumor activity.	K29268
Aerial Parts Uruguay	Anticrustacean Activity	HOT H ₂ O Ext	Not stated	1.0%	Active	<i>Artemia salina</i> system is intended to predict for antitumor activity assay.	K18125
Aerial Parts Brazil	Anticrustacean Activity	ETOH(95%)Ext	Not stated	LC50=>100 ppm	Inactive	<i>Artemia salina</i> larvae assay system is intended to predict for antitumor activity.	K24859
Root Panama	Crown Gall Tumor Inhibition	MEOH Ext	Potato Disc	Not stated	Active	<i>Agrobacterium tumefaciens</i> assay system is intended to predict for antitumor activity.	K29268
Root Panama	Cytotoxic Activity	MEOH Ext	Not stated	100.0 mcg/ml	Inactive	Vs. cell line v79.	K29268
Aerial Parts Panama	Cytotoxic Activity	H ₂ O Ext	Cell Culture	100.0 mcg/ml	Inactive	Cells-vero.	K28424
Aerial Parts Panama	Cytotoxic Activity	H ₂ O Ext	Cell Culture	IC50=54.0 mcg/ml	Weak Activity	Cells-mt-4 vs. HIV-induced cytopathogenicity.	L10189
Leaf Brazil	Cytotoxic Activity	MEOH(75%)Ext	Cell Culture	IC50 500.0 mcg/ml	Inactive	Cells-vero.	L05437
Root Europe	Antileukemic Activity	MEOH Ext	in vitro	Not stated	Active	70-78% inhibition via potato disc assay.	AE1009

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Entire Plant Taiwan	Antileukemic Activity	Hot H2O Ext Hot H2O Ext Hot H2O Ext Hot H2O Ext Hot H2O Ext	Cell Culture Cell Culture Cell Culture Cell Culture Cell Culture	171.4 mcg/ml 196.4 mcg/ml 197.3 mcg/ml 586.5 mcg/ml IC50=145.7 mcg/ml	Active Active Active Active Active	LEUK-K562. CELLS-P3-JHR1. LEUK-L1210. CELLS-U937. CELLS-RAJI.	L16511
Leaf Japan	Antioxidant Activity	MEOH Ext	Cell Culture	10.0 mg/liter	Inactive	Thymocytes vs. H2O2-induced cell death.	L14652
Leaf Japan	Radical Scavenging Effect	MEOH Ext	Not stated	10.0 mg/liter	Active	vs. DPPH radical.	L14652
Not stated South Africa	Anti-inflammatory Activity	ETOH Ext	in vitro	Not stated	Active	Inhibited cyclooxygenase.	AE1010
Leaf Rwanda	Immunomodulator Activity	ETOH(80%)Ext	Cell Culture	Not stated	Active	vs. PHA-induced lymphocyte proliferation.	K23025
Leaf Brazil	Immunosuppressant Activity	MEOH Ext MEOH Ext	Cell Culture	100.0 mcg/ml 100.0 mcg/ml	Active Active	vs. phytohemagglutinin-stimulated lymphocyte proliferation. vs. concanavalin a-stimulated lymphocyte proliferation.	L04335
Not stated China	Cell Proliferation Inhibition	H2O Ext	Cell Culture	50.0 mcg/ml	Weak Activity	Mononuclear leukocytes.	L12764
Root Panama	DNA Intercalating Effect	MEOH Ext	Not stated	0.25 mg/ml	Active		K29268
Not stated Peru	DNA Binding Effect	ETOH(70%)Ext	Not stated	0.5 mg/ml	Weak Activity	DNA-calf thymus.	K27875
Entire Plant Taiwan	Glutamate-pyruvate-transaminase Inhibition	ETOH-H2O(1:1) Ext	Cell Culture	1.0 mg/ml	Inactive	Cells-rat-liver vs. CCl4-induced hepatotoxicity.	T14999
Entire Plant Taiwan	Glutamate-pyruvate-transaminase Inhibition	ETOH-H2O(1:1) Ext	Cell Culture	1.0 mg/ml	Inactive	Cells-rat-liver vs. PGE-1-induced pedal edema.	T14999
Aerial Parts Panama	Giant Cell Formation Inhibition	H2O Ext	Cell Culture	MIC=500.0 mcg/ml	Weak Activity	Cells-molt 4.	L10189
Aerial Parts Uruguay	Plant Root Growth Inhibition	HOT H2O Ext	Not stated	5.0%	Active	Assayed in <i>Triticum aestivum</i> .	K18125
Aerial Parts Uruguay	Plant Root Growth Stimulant	HOT H2O Ext	Not stated	0.5%	Equivocal	Assayed in <i>Triticum aestivum</i> .	K18125

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Not stated	Acrosin Inhibition	ETOH (defatted with pet ether) Ext	Not stated	Not stated	Active		X00020
Not stated Peru	Beta-glucuronidase Inhibition	ETOH(70%)Ext	Not stated	IC50=7.6 mcg/ml	Active		K27875
Not stated Peru	Xanthine Oxidase Inhibition	ETOH(70%)Ext	Not stated	>50.0 mcg/ml	Inactive		K27875
Not stated	Phototoxic Activity	Not stated	Not stated	Not stated	Active	Phototoxic to bacteria, fungi and human fibroblast cells.	AE1013

Biological Activities for Compounds of Picao preto (*Bidens pilosa*)

Compound Tested	Activity Tested For	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Quercetin 3,3'-dimethyl ether 7-o-alpha-l-rhamnopyranosyl-(1-6)-beta-d-glucopyranoside	Antimalarial Activity	in vitro	50 ug 25 ug 20 ug 10 ug 5 ug	Active Active Active Active Weak Activity	90% inhibition of <i>P. falciparum</i> . 85% inhibition of <i>P. falciparum</i> . 99% inhibition of <i>P. falciparum</i> . 73% inhibition of <i>P. falciparum</i> . 34% inhibition of <i>P. falciparum</i> .	AE1006
Quercetin 3,3'-dimethyl ether-7-o-beta-d-glucopyranoside	Antimalarial Activity	in vitro	50 ug 25 ug	Active Active	61% inhibition of <i>P. falciparum</i> . 54% inhibition of <i>P. falciparum</i> .	AE1006
beta-d-glucopyranose	Antimalarial Activity	Not stated	Not stated	Active	<i>Plasmodium falciparum</i>	AE1006
alpha-L-rhamnopyranosyl-(1-6)-beta-D-glucopyranose	Antimalarial Activity	Not stated	Not stated	Active	<i>Plasmodium falciparum</i>	AE1006
Phenylacetylene	Antimalarial Activity	Not stated	Not stated	Active	<i>Plasmodium falciparum</i>	AE1006
Phenylheptatriyne	Antimalarial Activity	Not stated	Not stated	Inactive	<i>Plasmodium falciparum</i>	AE1006
1-phenyl-1,3-diyne-5-en-7-ol acetate	Antimalarial Activity	in vitro	Not stated	Active	<i>Plasmodium falciparum</i>	J11673
Phenylheptatriyne	Antimicrobial Activity	Not stated	Not stated	Active		K08422
2-beta-d-glucopyranosyloxy-2-hydroxy-5(e)-tridecene-7,9,11-triyne + 3-beta-d-glucopyranosyloxy-1-hydroxy-6(e)-tetradecene-8,10,1 2-triyne	Hypoglycemic Activity	Mice	Not stated	Active	Reduced blood glucose.	L08341
Friedelin	Anti-inflammatory Activity	Not stated	Not stated	Active		K08422
Friedelan-3-beta-ol	Anti-inflammatory Activity	Not stated	Not stated	Active		K08422
Isoquercitrin	Neutrophil Elastase Inhibition	in vitro	IC50=0.7 mcg/ml	Active	Human neutrophil elastase.	AE1014
Alpha-tocopherylquinone	Vitamin E Production	Oral Human Adult	400 mg	Active	Converted to alpha-tocopherol (vitamin E).	AE1015
Alpha-tocopherylquinone	Antioxidant Activity	Cell Culture	Not stated	Active	Low concentrations.	AE1016
Alpha-tocopherylquinone	Pro-oxidant Activity	Cell Culture	Not stated	Active	High concentrations.	AE1016

Literature Cited - Picao preto (*Bidens pilosa*)

A04210	ON THE CAUSES OF OBSTRUCTED LABOUR IN UGANDA. MITCHELL,JP: E AFR MED J 15 : 177- (1938) (MULAGO HOSPITAL KAMPALA UGANDA)
A14608	L-INOSITOL, L-QUEBRACHITOL, AND D-PINITOL IN SOME BOTANICAL GROUPS. THE PRESENCE OF SHIKIMIC ACID IN MAMMEA AMERICANA. PLOUVIER,V: C R ACAD SCI 258 10: 2921-2924 (1964) (LAB CHIM APPL CORPS ORG MUS NAT HIST NATUR PARIS F-75005 FRANCE)
H07457	NEW AURONE GLUCOSIDES AND NEW PHENYLPROPANOID GLUCOSIDES FROM BIDENS PILOSA. SASHIDA,Y: OGAWA,K: KITADA,M: KARIKOME,H: MIMAKI,Y: SHIMOMURA,H: CHEM PHARM BULL 39 3: 709-711 (1991) (TOKYO COLL PHARM TOKYO 192 03 JAPAN)
H10046	CAFFEYOYL DERIVATIVES OF A SUGAR LACTONE AND ITS HYDROXY ACID FROM THE LEAVES OF BIDENS PILOSA. OGAWA,K: SASHIDA,Y: PHYTOCHEMISTRY 31 10: 3657-3658 (1992) (TOKYO COLL PHARM TOKYO 192-03 JAPAN)
H16059	A DITERPENE FROM BIDENS PILOSA. ZULUETA,MCA: TADA,M: RAGASA,CY: PHYTOCHEMISTRY 38 6: 1449-1450 (1995) (DEPT CHEM DE LA SALLE UNIV MANILA 1004 PHILIPPINES)
H20010	BIOACTIVE POLYACETYLENES FROM BIDENS PILOSA. ALVAREZ,L: MARQUINA,S: VILLARREAL,ML: ALONSO,D: ARANDA,E: DELGADO,G: PLANTA MED 62 4: 355-357 (1996) (DEPT QUIM ORG FAC CIENC QUIM ING UNIV AUTONOMA MORELOS 62210 MEXICO)
H22078	TWO METHOXYLATED FLAVONE GLYCOSIDES FROM BIDENS PILOSA. BRANDAO,MGL: NERY,CGC: MAMAO,MAS: KRETTLI,AU: PHYTOCHEMISTRY 48 2: 397-399 (1998) (LAB FARMACOG FAC FARM UNIV FED MINAS GERAIS BELO HORIZONTE BRAZIL)
H23546	FLAVONOIDS FROM BIDENS PILOSA VAR.RADIATA. WANG,J: YANG,H: LIN,ZW: SUN,HD: PHYTOCHEMISTRY 46 7: 1275-1278 (1997) (LAB PHYTOCHEM KUNMING INST BOT CHIN ACAD SCI KUNMING 650204 CHINA)
H28235	THE LOW POLAR CONSTITUENTS FROM BIDENS PILOSA L. VAR. MINOR (BLUME) SHERFF. CHANG,MH: WANG,GJ: KUO,YH: LEE,CK: J CHIN CHEM SOC 47 5: 1131-1136 (2000) (DEPT FOOD NUTRITION CHUNG HWA INST TECHNOLOGY TAINAN CHINA)
J01423	TWO HUNDRED SIXTY-EIGHT MEDICINAL PLANTS USED TO REGULATE FERTILITY IN SOME COUNTRIES OF SOUTH AMERICA. UNPUBLISHED (STENCILED) REVIEW IN SPANISH. MORENO A,R: BOOK : - (1975) (PARAGUAY)
J08936	ALKALOID-LIKE COMPOUNDS IN THE PLANTS FROM THE FAMILY COMPOSITAE (ASTERACEAE). PART II. THE TRIBE HELIANTHAE. RASZEJA,W: HERBA POL 21 : 115- (1975) (INST TECHNOL ANAL LEKU AKAD MED GDANSK GDANSK 80-916 POLAND)
J11673	ANTIMALARIAL ACTIVITY OF EXTRACTS AND FRACTIONS FROM BIDENS PILOSA AND OTHER BIDENS SPECIES (ASTERACEAE) CORRELATED WITH THE PRESENCE OF ACETYLENE AND FLAVONOID COMPOUND.BRANDAO,MGL: KRETTLI,AU: SOARES,LSR: NEREY,CGC: MARINUZZI,HC: EUR J PHARMACOL 57 2: 131-138 (1997) (LAB FARMACOG FAC FARM UNIV FED MINAS GERAIS BELO HORIZONTE 30180 BRAZIL)
J16663	AROMATIC PLANTS OF TROPICAL CENTRAL AFRICA. PART XX. THE OCCURRENCE OF 1-PHENYLHEPTA-1,3,5-TRIYNE IN THE ESSENTIAL OIL OF BIDENS PILOSA L. FROM CAMEROON. ZOLLO,PHA: KUIATE,JR: MENUT,C: LAMATY,G: BESSIERE, JM: CHALCHAT,JC: GARRY,RP: FLAVOUR FRAGRANCE J 10 2: 97-100 (1995) (LAB BIOCHEM FAC SCI YAOUNDE CAMEROON)
J18701	USE OF MEDICINAL PLANTS FOR DIABETES IN TRINIDAD AND TOBAGO. MAHABIR,D: GULLIFORD,MC: PAN AM J PUBLIC HEALTH 1 3: 174-178 (1997) (NUTR METABOL DIV MINISTRY HEALTH TRINIDAD & TOBAGO SPAIN)
J18843	PLANTS USING TRADITIONAL MEDICINE BY HAYAS BY THE KAGERA REGION, TANZANIA. CHHABRA,SC: MAHUNNAH,RLA: ECON BOT 48 2: 121-129 (1994) (CHEM DEPT KENYATTA UNIV NAIROBI KENYA)

J19078	USE OF MEDICINAL PLANTS FOR DIABETES IN TRINIDAD AND TOBAGO. MAHABIR,D: GULLIFORD,MC: REV PANAM SALUD PUBL/PAN AM J PUBL HEALTH 1 3: 174-179 (1997) (NUTR METABOL DIV MINISTRY HEALTH TRINIDAD TOBAGO SPAIN)
J19693	EFFECTS OF LEAF AQUEOUS EXTRACT OF BIDENS PILOSA (ASTERACEAE) ON KC1-AND NOREPINEPHRINE-INDUCED CONTRACTIONS OF RAT AORTA. DIMO,T: RAKOTONIRINA,S: KAMGANG,R: TAN,PV: KAMANYI,A: BOPELET,M: J ETHNOPHARMACOL 60 2: 179-182 (1998) (DEPT ANIMAL BIOL PHYSIOL FAC SCI UNIV YAOUNDE I YAOUNDE CAMEROON)
K04594	MEDICINAL PLANTS OF EAST AFRICA. EAST AFR LITERATURE BUREAU, NAIROBI. KOKWARO,JO: BOOK : - (1976) (DEPT BOTANY NAIROBI UNIV NAIROBI KENYA)
K08422	CONSTITUENTS OF BIDENS PILOSA L: DO THE COMPONENTS FOUND SO FAR EXPLAIN THE USE OF THIS PLANT IS TRADITIONAL MEDICINE? GEISSBERGER,P: SEQUIN,U: ACTA TROPICA 48 4: 251-261 (1991) (INST ORG CHEM UNIV BASEL BASEL CH-4056 SWITZERLAND)
K08651	CONSTITUENTS AND BIOLOGICAL ACTIVITY OF BIDENS PILOSA L.GROWN IN EGYPT. SARG,TM: ATEYA,AM: FARRAG,NM: ABBAS,FA: ACTA PHARM HUNG 61 6: 317-323 (1991) (DEPT PHARMACOG FAC PHARM UNIV ZAGAZIG ZAGAZIG EGYPT)
K11142	SCREENING FOR ANTIFUNGAL ACTIVITY OF PANAMANIAN PLANTS. RAHALISON,L: HAMBURGER,M: HOSTETTMANN,K: MONOD,M: FRENK,E: GUPTA,MP: SANTANA,AI: CORREA,MD: GONZALEZ,AG: INT J PHARMACOG 31 1: 68-76 (1993) (INST PHARMACOG & PHYTOCHEM SCH PHARM UNIV LAUSANNE LAUSANNE CH-1005 SWITZERLAND)
K14672	CRUDE DRUGS USED FOR THE TREATMENT OF DIABETES MELLITUS IN TAIWAN. LIN,CC: AMER J CHINESE MED 20 3/4: 269-279 (1992) (SCH PHARM KAOHSIUNG MED COLL KAOHSIUNG TAIWAN)
K16948	MEDICINAL PLANTS USED IN SOME RURAL POPULATIONS OF OAXACA, PUEBLA AND VERACRUZ, MEXICO. ZAMORA-MARTINEZ,MC: POLA,CNP: J ETHNOPHARMACOL 35 3: 229-257 (1992) (CENT INV FOREST AGROP DIS FED MEXICO 04110 MEXICO)
K17419	IN VITRO INHIBITION OF MYCOBACTERIA BY RWANDESE MEDICINAL PLANTS. VAN PUYVELDE,L: NTAWUKILYAYO,JD: PORTAELS,F: HAKIZAMUNGU,E: PHYTOTHER RES 8 2: 65-69 (1994) (LAB MYCOBACTERIOL INST TROP MED ANTWERPEN BELGIUM)
K18125	BIOLOGICAL SCREENING OF URUGUAYAN MEDICINAL PLANTS. GONZALEZ,A: FERREIRA,F: VAZQUEZ,A: MOYNA,P: PAZ,EA: J ETHNOPHARMACOL 39 3: 217-220 (1993) (CAT FARMACOG PROD NAT MONTEVIDEO URUGUAY)
K20471	TRADITIONAL MEDICINAL PLANTS OF RAROTONGA, COOK ISLANDS. PART I. HOLDSWORTH,DK: INT J CRUDE DRUG RES 28 3: 209-218 (1990) (WAU ECOL INST WAU MOROBE PROV PAPUA PAPUA-NEW GUINEA)
K21091	ETHIOPIAN TRADITIONAL HERBAL DRUGS. PART II: ANTIMICROBIAL ACTIVITY OF 63 MEDICINAL PLANTS. DESTA,B: J ETHNOPHARMACOL 39 2: 129-139 (1993) (SCH PHARM ADDIS ABABA UNIV ADDIS ABABA ETHIOPIA)
K23025	SCREENING OF RWANDESE PLANT EXTRACTS FOR THEIR INFLUENCE ON LYMPHOCYTE PROLIFERATION. LASURE,A: VAN POEL,B: DE CLERCK,LS: BRIDTS,CH: STEVENS,WJ: RWANGARO,PC: PIETERS,L: VLIETINCK,AJ: PHYTOMEDICINE 1 4: 303-307 (1995) (DEPT PHARM SCI UNIV ANTWERP ANTWERP B-2610 BELGIUM)
K24859	BRINE SHRIMP LETHALITY ASSAY AS A PRESCREENING SYSTEM FOR ANTI-TRYPANOSOMA CRUZI ACTIVITY. ZANI,CL: CHAVES,PPG: QUEIROZ,R: DE OLIVEIRA,AB: CARDOSO,JE: ANJOS,AMG: GRANDI,TSM: PHYTOMEDICINE 2 1: 47-50 (1995) (LAB QUIM PROD NAT CENTRO DE PESQUISAS BELO HORIZONTE BRAZIL)
K24886	HERBAL REMEDIES OF SURKHET DISTRICT, NEPAL. MANANDHAR,NP: FITOTERAPIA 66 3: 266-272 (1993) (NATL HERB PLANT LAB LALILPUR NEPAL)

K24899	PLANTS USED IN GUATEMALA FOR THE TREATMENT OF GASTROINTESTINAL DISORDERS. 1. SCREENING OF 84 PLANTS AGAINST ENTEROBACTERIA. CACERES,A: CANO,O: SAMAYOA,B: AGUILAR,L: J ETHNOPHARMACOL 30 1: 55-73 (1990) (CEMT APARTADO POSTAL 01001 GUATEMALA)
K25347	HERBAL REMEDIES OF SURKHET DISTRICT , NEPAL. MANANDHAR,NP: FITOTERAPIA 64 3: 266-272 (1993) (NATL HERBARIUM PLANT LAB LATITPUR NEPAL)
K26669	ETHNOPHARMACOLOGY OF SOME ASTERACEAE FAMILY USED IN NIGERIAN TRADITIONAL MEDICINE. AKAH,PA: EKEKWE,RK: FITOTERAPIA 66 4: 351-355 (1995) (DEPT PHARM UNIV NIGERIA NSUKKA NIGERIA)
K26851	MEDICINAL PLANTS OF RODRIGUES. GURIB-FAKIM,A: SWERAJ,MD: GUEHO,J: DULLOO,E: INT J PHARMACOG 34 1: 2-14 (1996) (CHEM DEPT FAC SCI UNIV MAURITIUS REDUIT MAURITIUS)
K27030	MEDICINAL PLANTS OF LAVRAS NOVAS (MINAS GERAIS,BRAZIL). STEHMANN,JR: BRANDAO,MGL: FITOTERAPIA 56 6: 515-520 (1995) (DEPT BOT INST CIENCIAS BIOL CAIXA POSTAL 31270 BRAZIL)
K27036	THE ETHNOPHARMACOLOGY OF MADEIRA AND PORTO SANTO ISLANDS, A REVIEW. RIVERA,D: OBON,C: J ETHNOPHARMACOL 46 2: 73-93 (1995) (DEPT BIOL VEG LAB ETNOBOTANICA UNIV MURCIA MURCIA 30100 SPAIN)
K27041	TRADITIONAL HERBAL EYE MEDICINE IN KENYA. KLAUSS,V: ADALA,HS: WORLD HEALTH FORUM 15 9: 138-143 (1994) (UNIV EYE HOSP MATHIDENSTRASSE MUNICH GERMANY)
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)
K27812	SCREENING OF HUNDRED RWANDESE MEDICINAL PLANTS FOR ANTIMICROBIAL AND ANTIVIRAL PROPERTIES. VLIETINCK,AJ: VAN HOOF,L: TOTTE,J: LASURE,A: VANDEN BERGHE,D: RWANGABO,PC: MVUKIYUMWAMI,J: J ETHNOPHARMACOL 46 1: 31-47 (1995) (DEPT PHARMACEUT SCI UNIV ANTWERP ANTWERP B-2610 BELGIUM)
K27822	THE SECRETIONS AND EXUDATES OF PLANTS USED IN MAYAN TRADITIONAL MEDICINE. FLORES,JS: RICALDE,RV: J HERBS SPICES MED PLANTS 4 1: 53-59 (1996) (FAC MED VET ZOOTEK UNIV AUTON YUCATAN MERIDA YUCUTAN 97100 MEXICO)
K27875	BIOLOGICAL ACTIVITY OF MEDICINAL PLANTS OF ICA (PERU). KLINAR,S: CASTILLO,P: CHANG,A: SCHMEDA-HIRSCHMANN,G: REYES,S: THEODULOZ,C: RAZMILIC,I: FITOTERAPIA 66 4: 341-345 (1995) (LAB PROD NATURAL FAC FARM BIOQUIM UNIV SAN LUIS GONZAGA ICA PERU)
K28424	INHIBITORY EFFECTS OF VARIOUS AYURVEDIC AND PANAMANIAN MEDICINAL PLANTS ON THE INFECTION OF HERPES SIMPLEX VIRUS-1 IN VITRO AND IN VIVO. HATTORI,M: NAKABAYASHI,T: LIM,YA: MIYASHIRO,H: KUROKAWA,M: SHIRAKI,K: GUPTA,MP: CORREA,M: PILAPITIYA,U: PHYTOTHER RES 9 4: 270-276 (1995) (RES INST ORIENTAL MED TOYAMA MED & PHARM UNIV TOYAMA 930-01 JAPAN)
K29051	SCREENING OF PANAMANIAN PLANTS FOR MOLLUSCIDAL ACTIVITY. MARSTON,A: DUDAN,G: GUPTA,MP: SOLIS,PN: CORREA,MD: HOSTETTMMANN,K: INT J PHARMACOG 34 1: 15-18 (1996) (INST PHARMACOG & PHYTOCHEM SCH PHARM UNIV LAUSANNE LAUSANNE CH-1005 SWITZERLAND)
K29113	MEDICINAL PLANTS OF CHINA. REFERENCE PUBLICATIONS, INC. ALGONAC, MICHIGAN, 1985. DUKE,JA: AYENSU,ES: BOOK 1 4: 52-361 (1985) (NO ADDRESS GIVEN)

K29268	SCREENING OF PANAMANIAN MEDICINAL PLANTS FOR BRINE SHRIMP TOXICITY, CROWN GALL TUMOR INHIBITION, CYTOTOXICITY AND DNA INTERCALATION. GUPTA,MP: MONGE,A: KARIKAS,GA: LOPEZ DE CERAIN,A: SOLIS,PN: DE LEON,E: TRUJILLO,M: SUAREZ,O: WILSON,F: MONTENEGRO,G: NORIEGA,Y: SANTANA,AI: CORREA,M: SANCHEZ,C: INT J PHARMACOG 34 1: 19-27 (1996) (PHARMACOG RES UNIT UNIV PANAMA PANAMA PANAMA)
K29839	STUDIES ON CHEMICAL PROTECTORS AGAINST RADIATION. XXXII. PROTECTIVE EFFECTS OF METHANOL EXTRACTS OF VARIOUS TAIWAN CRUDE DRUGS ON RADIATION INJURIES. WANG,CM: OHTA,S: SHINODA,M: YAKUGAKU ZASSHI 110 11: 885-889 (1990) (FAC PHARM SCI HOSHI UNIV TOKYO 142 JAPAN)
L02822	HYPOGLYCAEMIC PLANTS FROM THE CANARY ISLANDS. DARIAS,V: ABDALA,S: MARTIN,D: RAMOS,F: PHYTOTHER RES SUPPL 10 : S3-S5 (1996) (DEPT FARMACOL FAC FARMACIA UNIV LA LAGUNA TENERIFE SPAIN)
L03570	STUDY OF THE ANTI-HYPERGLYCEMIC EFFECT OF PLANTS USED AS ANTIDIABETICS. ALARCON-AGUILARA,FJ: ROMAN-RAMOS,R: PEREZ-GUTIERREZ,S: AGUILAR-CONTRRRAS,A: CONTRERAS-WEBER,CC: FLORES-SAENZ,JL: J ETHNOPHARMACOL 61 2: 101-110 (1998) (DEPT CIEN SALUD UNIV AUTOM METROP IZTAPALAPA MEXICO MEXICO)
L04137	AMAZONIAN ETHNOBOTANICAL DICTIONARY. DUKE,JA: BOOK : 181- (1994) (USA)
L04335	IMMUNOSUPPRESSIVE AND ANTI-INFLAMMATORY EFFECTS OF METHANOLIC EXTRACT AND THE POLYACETYLENE ISOLATED FROM BIDENS PILOSA L. PEREIRA,RLC: IBRAHIM,T: LUCCHETTI,L: DA SILVA,AJR: DE MORAES,VLG: IMMUNOPHARMACOLOGY 43 1: 31-37 (1999) (DEPT BIOQUIM MED UNIV FED RIO JANEIRO RIO DE JANEIRO BRAZIL)
L05008	HYPOTENSIVE EFFECTS OF A METHANOL EXTRACT FROM BIDENS PILOSA LINN ON HYPERTENSIVE RATS. DIMO,T: NGUELEFACK,TB: KAMTCHOUING,P: DONGO,E: RAKOTONIRINA,A: RAKOTONIRINA,SV: C R ACAD SCI PARIS 322 4: 323-329 (1999) (LAB PHYSIOL ANIMAL FAC SCI UNIV YAOUNDE YAOUNDE CAMEROON)
L05437	ANTIVIRAL ACTIVITY OF SOUTH BRAZILIAN MEDICINAL PLANT EXTRACTS. SIMOES,CMO: FALKENBERG,M: AULER MENTZ,L: SCHENKEL,EP: AMOROS,M: GIRRE,L: PHYTOMEDICINE 6 3: 205-214 (1999) (DEPT PHARM SCI HEALTH SCI CENT UNIV FED SANTA CATARINA FLORIANOPOLIS BRAZIL)
L06781	GASTRIC ANTISECRETORY AND ANTIULCER ACTIVITIES OF AN ETHANOLIC EXTRACT OF BIDENS PILOSA L. VAR. RADIATA SCHULT. BIP. ALVAREZ,A: POMAR,F: SEVILLA,MA: MONTERO,MJ: J ETHNOPHARMACOL 67 3: 333-340 (1999) (DEPT INVEST INST GASTROENTEROL HABANA 10400 CUBA)
L08341	ANTIHYPERGLYCEMIC ACETYLENIC GLUCOSIDES FROM BIDENS PILOSA. UBILLAS,RP: MENDEZ,CD: IOLAD,SD: LUO,J: KING,SR: CARLSON,TJ: FORT,DM: PLANTA MED 66 1: 82-83 (2000) (SHAMAN PHARMACEUTICAL INC. SOUTH SAN FRANCISCO CA USA)
L09755	5-O-MEHTYLHOSLUNDIN: AN UNUSUAL FLAVONOID FROM BIDENS PILOSA (ASTERACEAE). SARKER,SD: BARTHOLOMEW,B: NASH,RJ: ROBINSON,N: BIOCHEM SYST ECOL 28 6: 591-593 (2000) (INST GRASSLAND ENVIRONMENTAL RES WALES ENGLAND)
L10189	A SEARCH FOR ANTI-VIRAL PROPERTIES IN PANAMANIAN MEDICINAL PLANTS. THE EFFECTS ON HIV AND ITS ESSENTIAL ENZYMES. MATSUSE,IT: LIM,YA: HATTORI,M: CORREA,M: GUPTA,MP: J ETHNOPHARMACOL 64 1: 15-22 (1999) (FAC MED TOYAMA MED PHARM UNIV TOYAMA JAPAN)
L10331	MEDICINAL PLANTS IN THE HEALING OF DRY SOCKET IN RATS: MICROBIOLOGICAL AND MICROSCOPIC ANALYSIS. MELO JUNIOR,EJM: LISBOA NETO,JA: DINIZ,MFA: MARCELINO JUNIOR,CAC: SANT ANA,AEG: PHYTOMEDICINE 9 2: 109-116 (2002) (DEPT PATHOLOGY SCH DENTISTRY FEDERAL UNIV ALAGOAST MACEIO AL BRAZIL)

L12395	EFFECTS OF METHANOL, CYCLOHEXANE AND METHYLENE CHLORIDE EXTRACTS OF BIDENS PILOSA ON VARIOUS GASTRIC ULCER MODELS IN RATS. TAN,PV: DIMO,T: DONGO,E: J ETHNOPHARMACOL 73 3: 415-421 (2000) (DEPT ANIMAL BIOL PHYSIOL FAC SCI UNIV YAOUNDE YAOUNDE CAMEROON)
L12764	EVALUATION OF CHINESE HERBS THAT AFFECT THE CELL-MEDIATED IMMUNITY (I). KUO,YC: OU,JC: TSAI,WJ: WU,CL: SUN,CM: J CHIN MED 6 3: 211-221 (1995) (NATL RES INST CHIN MED TAIPEI TAIWAN)
L13602	ANTIMALARIAL ACTIVITY OF AJUGA REMOTA BENTH (LABIATAE) AND CAESALPINIA VOLKENSII HARMS (CAESALPINIACEAE): IN VITRO CONFIRMATION OF ETHNOPHARMACOLOGICAL USE. KURIA,KAM: MURIUKI,G: MASENGO,W: KIBWAGE,I: HOOGMARTENS,J: LAEKEMAN,GM: J ETHNOPHARMACOL 74 2: 141-148 (2001) (FACULTY PHARM UNIV NAIROBI NAIROBI KENYA)
L13922	SCREENING OF MEDICINAL PLANTS FROM TRINIDAD AND TOBAGO FOR ANTIMICROBIAL AND INSECTICIDAL PROPERTIES. CHARIANDY,CM: SEAFORTH,CE: PHELPS,RH: POLLARD,GV: KHAMBAY,BPS: J ETHNOPHARMACOL 64 3: 265-270 (1999) (DEPT LIFE SCI CHEM FAC AGRICULT NATURAL SCI UNIV WEST INDIES ST AUGUSTINE TRINIDAD/TOBAGO)
L14652	EVALUATION OF THE ANTIOXIDANT ACTIVITY OF ENVIRONMENTAL PLANTS: ACTIVITY OF THE LEAF EXTRACTS FROM SEASHORE PLANTS. MASUDA,T: YONEMORI,S: OYAMA,Y: TAKEDA,Y: TANAKA,T: ANDOH,T: SHINOHARA,A: NAKATA,M: J AGR FOOD CHEM 47 4: 1749-1754 (1999) (FAC INTEGRATED ARTS SCIENCES UNIV TOKUSHIMA TOKUSHIMA JAPAN)
L15529	EFFECTS OF THE AQUEOUS AND METHYLENE CHLORIDE EXTRACTS OF BIDENS PILOSA LEAF ON FRUCTOSE-HYPERTENSIVE RATS. DIMO,T: AZAY,J: TAN,PV: PELLECUER,J: CROS,G: BOPELET,M: SERRANO,JJ: J ETHNOPHARMACOL 76 3: 215-221 (2001) (DEPT ANIMAL BIOLOGY PHYSIOLOGY FACULTY SCIENCES UNIV YAOUNDE YAOUNDE CAMEROON)
L15587	ANTIBACTERIAL ACTIVITY OF SOUTH AFRICAN PLANTS USED FOR MEDICINAL PURPOSES. RABE,T: VAN STADEN,J: J ETHNOPHARMACOL 56 : 81-87 (1997) (DEPT BOTANY NATAL UNIV RES UNIT PLANT UNIV NATAL PIETERMARITZBURG SCOTSVILLE SOUTH AFRICA)
L15693	MEDICINAL PLANTS OF THE EASTERN REGION OF MADAGASCAR. NOVY,JW: J ETHNOPHARMACOL 55 : 119-126 (1997) (CENT CONSERVATION BIOL DEPT BIOL SCI STANFORD CA 94305 USA)
L15725	MEDICINAL PLANTS USED FOR INTESTINAL DISEASES IN MBALMAYO REGION, CENTRAL PROVINCE, CAMEROON. NOUMI,E: YOMI,A: FITOTERAPIA 72 3: 246-254 (2001) (LAB BIOLOGIE ECOLE NORMALE UNIV YAOUNDE YAOUNDE CAMEROON)
L15922	NEW ANTIMALARIAL DRUGS: A SEARCH BASED ON PLANTS USED IN POPULAR MEDICINE TO TREAT FEVER AND MALARIA. KRETTLI,AU: BRANDAO,MDGL: FERRARI,WMS: FOLHA MED 120 2: 119-126 (2001) (LAB MALARIA CENTRO RESQ RENE RACHOU BELO HORIZONTE BRAZIL)
L16047	SCREENING OF MEDICINAL PLANTS USED BY THE GARIFUNA OF EASTERN NICARAGUA FOR BIOACTIVE COMPOUNDS. COE,FG: ANDERSON,GJ: J ETHNOPHARMACOL 53 : 29-50 (1996) (DEPT ECOL EVOLUNT BIOL UNIV CONNECTICUT STORRS CT 06269 USA)
L16048	ANTIBACTERIAL, ANTHELMINTIC AND ANTI-AMOEBIC ACTIVITY IN SOUTH AFRICAN MEDICINAL PLANTS. MCGAW,LJ: JAGER,AK: STADEN,JV: J ETHNOPHARMACOL 72 1/2: 247-263 (2000) (RES CENTRE PLANT GROWTH DEVELO SCH ZOOLOGY UNIV NATAL PIETERMARITZBURG SCOTTSVILLE SOUTH AFRICA)
L16511	ANTILEUKEMIC ACTIVITY OF BIDENS PILOSA L. VAR. MINOR (BLUME) SHERFF AND HOUTTUYNIA CORDATA THUNB. CHANG,JS: CHIANG,LC: CHEN,CC: LIU,LT: WANG,KC: LIN,CC: AMER J CHINESE MED 29 2: 303-312 (2001) (GRADUATE INST NAT PRODUCTS KAOHSIUNG MED COLL KAOHSIUNG TAIWAN)
L16798	USE OF MEDICINAL PLANTS DURING THE PUERERAL GRAVID CYCLE. ANDRADE,AABD: ARAUJO,AL: DINIZ,MFFM: OLIVEIRA,RAG: MENDONCA,F: MENDONCA,D: J BRAS GINECOL 106 5: 177-185 (1996) (DEPT MATERNO INFANTIL BRAZIL)

L18036	METODO ANALITICO PARA LA CUANTIFICACION DE TANINOS EN EL EXTRACTO ACUOSO DE ROMERILLO. VALADES,HL: LEYES,RL: REGO,HPL: SANABIA,MLG: REV CUBANA PLANT MED 5 1: 17-22 (2000) (CENT INVEST DESARROLO MEDICAM HAVANA CUBA)
L18469	ANTI-MIDCROBIAL ACTIVITY OF BIDENS PILOSA, BISCHOFIA JAVANICA, ELMERILLIA PAPUANA AND SIGESBEKIA ORIENTALIS. KHAN,MR: KIHARA,M: OMOLOSO,AD: FITOTERAPIA 72 6: 662-665 (2001) (DEPT APPL SCI PAPUA NEW GUINEA UNIV TECHN PAPUA PAPUA-NEW GUINEA)
M17399	FURTHER ACYLATED CHALCONES FROM BIDENS PILOSA. HOFFMANN,B: HOLZL,J: PLANTA MED 54 5: 450-451 (1988) (INST PHARM BIOL UNIV MARBURG MARBURG D-3550 GERMANY)
M18081	A METHYLATED CHALCONE GLUCOSIDE FROM BIDENS PILOSA. HOFFMANN,B: HOLZL,J: PHYTOCHEMISTRY 27 11: 3700-3701 (1988) (INST PHARM BIOL UNIV MARBURG MARBURG D-3550 GERMANY)
M22213	CHALCONE GLUCOSIDES FROM BIDENS PILOSA. HOFFMANN,B: HOLZL,J: PHYTOCHEMISTRY 28 1: 247-249 (1989) (INST PHARM BIOL UNIV MARBURG MARBURG D-3550 GERMANY)
M23305	A SURVEY OF MEDICINAL PLANTS OF THE SOUTHERN HIGHLANDS, PAPUA NEW GUINEA. HOLDSWORTH,D: RALI,T: INT J CRUDE DRUG RES 27 1: 1-8 (1989) (CHEM EDUC SEC SCH CHEM SCI UNIV EAST ANGLIA NORWICH NR4 7TJ ENGLAND)
M23792	ETHNOBOTANICAL TREATMENTS OF DIABETES IN BAJA CALIFORNIA NORTE. WINKELMAN,M: MED ANTHROPOL 11 3: 255-268 (1989) (DEPT ANTHROPOL ARIZONA STATE UNIV TEMPE AZ USA)
M25480	SCREENING OF MEDICINAL PLANTS OF RWANDA (CENTRAL AFRICA) FOR ANTIMICROBIAL ACTIVITY. BOILY,Y: VAN PUYVELDE,L: J ETHNOPHARMACOL 16 1: 1-13 (1986) (CEN UNIV RECH PHARM MED TRAD UNIV NATL RWANDA BUTARE 117 RWANDA)
M28328	SCREENING OF PLANTS USED IN SOUTH BRAZILIAN FOLK MEDICINE. ALICE,CB: VARGAS,VMF: SILVA,GAAB: DE SIQUEIRA,NCS: SCHAPOVAL,EES: GLEVE,J: HENRIQUES,JAP: HENRIQUES,AT:= J ETHNOPHARMACOL 35 2: 165-171 (1991) (CURSO PAS GRADUACAO FAC FARM UNIV FED RIO GRANDE DO SUL PORTO ALGRE BRAZIL)
M28528	SCREENING OF MEDICINAL PLANTS FROM YUNNAN PROVINCE IN SOUTHWEST CHINA FOR ANTIVIRAL ACTIVITY. YIP,L: PEI,S: HUDSON,JB: TOWERS,GHN: J ETHNOPHARMACOL 34 1: 1-6 (1991) (DEPT BOT MED MICROBIOL UNIV BRITISH COLUMBIA VANCOUVER V6T 2B1 CANADA)
M29355	MEDICINAL PLANTS USED FOR THE TREATMENT OF HEPATITIS IN TAIWAN. LIN,CC: KAN,WS: AMER J CHINESE MED 18 1/2: 35-43 (1990) (SCH MED KAOHSIUNG MED COLL KAOHSUING TAIWAN)
M31438	CONSTITUENTS OF ESSENTIAL OILS FROM BIDENS PILOSA L. AND AMBROSIA TRIFIDA L. SAKUDA,Y: KOCHI JOSHI DAIGAKU RIYO SHIZEN KAGAKUHEN 36 : 1-5 (1988) (KOCHI WOMEN'S UNIV KOCHI 780 JAPAN)
N06661	EXAMINATION OF NATURALLY OCCURRING POLYACETYLENES AND ALPHA-TERTHIENYL FOR THEIR ABILITY TO INDUCE CYTOGENIC DAMAGE. MACRAE,WD: CHAN,GFQ: WAT,CK: TOWERS,GHN: LAM,J: EXPERIENTIA 36 : 1096-1097 (1980) (DEPT BOTANY UNIV BRITISH COLUMBIA VANCOUVER BC V6T 1W5 CANADA)
N16264	ALLELOPATHIC PROPERTIES OF ALPHA-TERTHIENYL AND PHENYLHEPTATRIYNE, NATURALLY OCCURRING COMPOUNDS FROM SPECIES OF ASTERACEAE. CAMPBELL,G: LAMBERT,JDH: ARNASON,T: TOWERS,GHN: J CHEM ECOL 8 : 961-972 (1982) (DEPT BIOL CARLETON UNIV OTTOWA ONTARIO CANADA)
T00359	TRADITIONAL MEDICAL PRACTICES AND MEDICINAL PLANT USAGE ON A BAHAMIAN ISLAND. HALBERSTEIN,RA: SAUNDERS,AB: CUL MED PSYCHIAT 2 : 177-203 (1978) (USA)

T00701	MEDICINAL PLANTS OF THE WEST INDIES. AYENSU,ES: UNPUBLISHED MANUSCRIPT : 110 P- (1978) (OFFICE OF BIOLOGICAL CONSERVAT SMITHSONIAN INSTITUTION WASHINGTON DC 20560 USA)
T03717	FERTILITY-REGULATING PLANTS USED IN POPULAR MEDICINE IN NORTHEASTERN ARGENTINA. MARTINEZ-CROVETTO,R: PARODIANA 1 1: 97-117 (1981) (DEPARTAMENTO DE BOTANICA FAC AGRONOMIA Y VETERINARIA UNIV NACIONAL DEL NORDESTE CORRIENTES ARGENTINA)
T04621	TERRESTRIAL PLANTS MOLLUSCICIDAL TO LYMNAEID HOSTS OF FASCILIASIS HEPATICA IN PUERTO RICO. MEDINA,FR: WOODBURY,R: J AGR UNIV PUERTO RICO 63 : 366-376 (1979) (PUERTO RICO JUNIOR COLLEGE RIO PIEDRAS PUERTO RICO)
T04807	CERCARICIDAL ACTIVITY OF PHENYLHEPTATRIYNE AND ALPHA-TERTHIENYL, NATURALLY OCCURRING COMPOUNDS IN SPECIES OF ASTERACEAE (COMPOSITAE). GRAHAM,K: GRAHAM,EA: TOWERS,GHN: CAN J ZOOL 58 : 1955-1958 (1980) (DEPT BOTANY UNIV BRITISH COLUMBIA VANCOUVER BC V6T 1W5 CANADA)
T08016	MEDICINAL PLANTS USED IN A TOTONAC COMMUNITY OF THE SIERRA NORTE DE PUEBLA: TUZAMAPAN DE GALEANA, PUEBLA, MEXICO. MARTINEZ,MA: J ETHNOPHARMACOL 11 2: 203-221 (1984) (DEPT DE BOTANICA INST DE BIOLOGIA UNAM COYOACAN 70-233 MEXICO)
T08589	POTENTIAL ANTINEOPLASTIC ACTIVITY OF CUBAN PLANTS. IV. LOPEZ ABRAHAM,AN: ROJAS HERNANDEZ,NM: JIMENEZ MISAS,CA: REV CUBANA FARM 15 1: 71-77 (1981) (DEPT MICROBIOL INST MED TROPICAL UNIV HAVANA HAVANA CUBA)
T08685	FOLK MEDICINE IN TONGA. A STUDY ON THE USE OF HERBAL MEDICINES FOR OBSTETRIC AND GYNAECOLOGICAL CONDITIONS AND DISORDERS. SINGH,YN: IKAHIHIFO,T: PANUVE,M: SLATTER,C: J ETHNOPHARMACOL 12 3: 305-329 (1984) (SCHOOL OF NATURAL RESOURCES UNIV OF SOUTH PACIFIC SUVA FIJI)
T08848	A STUDY OF THE HYPOGLYCEMIC EFFECT OF SOME MEXICAN PLANTS. PEREZ,RM: OCEGUEDA,GA: MUNOZ,JL: AVILA,JG: MORROW,WW: J ETHNOPHARMACOL 12 3: 253-262 (1984) (LAB INVEST PROD NATU ESC NAC ESTUD PROF IZTACALA IZTACALA 54090 MEXICO)
T08870	GENERAL PHARMACOLOGIC INVENTORY OF MEDICINAL PLANTS OF RWANDA. CHAGNON,M: J ETHNOPHARMACOL 12 3: 239-251 (1984) (FAC SCI CURPHAMETRA UNIV NAT RWANDA BUTARE 117 RWANDA)
T09100	COLLECTION OF PLANTS AROUND AGORA-DODITAL IN UTTARKASHI DISTRICT OF UTTAR PRADESH, WITH MEDICINAL VALUES AND FOLK-LORE CLAIMS. CHANDRA,K: PANDEY,HC: INT J CRUDE DRUG RES 21 1: 21-28 (1983) (PHARM RES UNIT CCRAS CENTL COUN RES AYURVEDA&SIDDHA LUCKNOW UP INDIA) METHYL-N-AMYLNITROSAMINE. MIRVISH,SS: SALMASI,S: LAWSON,TA: POUR,P: SUTHERLAND,D: J NAT CANCER INST 74 6: 1283-1289 (1985) (EPPLEY INST RES CANC & ALL DIS UNIV NEBRASKA MED CENT OMAHA NE 68105 USA)
T09553	TRADITIONAL AND HERBAL MEDICINE IN THE COOK ISLANDS. WHISTLER,WA: J ETHNOPHARMACOL 13 3: 239-280 (1985) (PACIFIC TROPICAL BOTANICAL GARDEN LAWAI HI 96765 USA)
T10928	CONTRIBUTION TO THE ETHNOPHARMACOLOGICAL STUDY OF THE CANARY ISLANDS. DARIAS,V: BRAVO,L: BARQUIN,E: HERRERA,DM: FRAILE,C: J ETHNOPHARMACOL 15 2: 169-193 (1986) (DEPT FARMACOG FARMACODIN FAC FARM UNIV LA LAGUNA TENERIFE CANARY IS SPAIN)
T11657	ANTIMICROBIAL PROPERTIES OF PHENYLHEPTATRIYNE, A POLYACETYLENE ANTIBIOTIC. BONDARENKO,AS: PETRENKO,GT: AIZENMAN,BE: EVSEENKO,OV: MIKROBIOL ZH(KIEV) 47 2: 81-83 (1985) (INST MIKROBIOL VIRUSOL KIEV USSR)
T11739	TRADITIONAL MEDICINE OF BAJA CALIFORNIA SUR (MEXICO) I. DIMAYUGA,RE: AGUNDEZ,J: J ETHNOPHARMACOL 17 2: 183-193 (1986) (DEPT BIOL MAR UNIV AUTO BAJA CALIFORNIA SUR LA PAZ 2000 MEXICO)
T11836	INFLUENCE OF EXTRACTS FROM LEAVES AND STEM OF BIDENS PILOSA ON EXPERIMENTAL ULCEROGENESIS IN RATS. AVALOS,AA: DIAZ,MQ: GUERRERO,MC: REV CUBANA FARM 18 2: 143-150 (1984) (INST GASTRO LA HABANA CUBA)

T13488	FREQUENTLY USED MEDICINAL PLANTS IN BAJA CALIFORNIA NORTE. WINKELMAN,M: J ETHNOPHARMACOL 18 2: 109-131 (1986) (SCH SOC SCI UNIV CALIFORNIA IRVINE CA 92717 USA)
T13846	POPULAR MEDICINE OF THE CENTRAL PLATEAU OF HAITI. 2. ETHNOPHARMACOLOGICAL INVENTORY. WENIGER,B: ROUZIER,M: DAGUILH,R: HENRYS,D: HENRYS,JH: ANTON,R: J ETHNOPHARMACOL 17 1: 13-30 (1986) (LAB PHARMACOG FAC PHARM STRASBOURG 67048 FRANCE)
T14178	PRELIMINARY EVALUATION OF SOME WILD AND CULTIVATED PLANTS FOR SNAIL CONTROL IN MACHAKOS DISTRICT, KENYA. KLOOS,H: THIONGO,FW: OUMA,JH: BUTTERWORTH,AE: J TROP MED HYG 90 4: 197-204 (1987) (DEPT GEOGRAPHY ADDIS ABABA UNIV ADDIS ABABA ETHIOPIA)
T14184	NEW CHALCONES FROM BIDENS PILOSA. HOFFMANN,B: HOLZL,J: PLANTA MED 54 1: 52-54 (1988) (INST PHARM BIOL PHILIPPS-UNIV MARBURG MARBURG/LAHN D-3550 GERMANY)
T14775	CONTRIBUTION TO THE STUDY OF BIDENS PILOSA L. IDENTIFICATION AND ANTIPARASITIC ACTIVITY OF 1-PHENYL HEPTA-1-3-5 TRIYNE. N'DOUNGA,M: BALANSARD,G: BABADIAMIAN,A: DAVID,PT: GASQUET,M: BOUDON,G: PLANT MED PHYTOTHER 17 2: 64-75 (1983) (LAB PARASITOL FAC PHARM MARSEILLE FRANCE)
T14999	ANTIHEPATOTOXIC ACTIONS OF FORMOSAN PLANT DRUGS. YANFG,LL: YEN,KY: KISO,Y: KIKINO,H: J ETHNOPHARMACOL 19 1: 103-110 (1987) (TAIPEI MED COLL TAIPEI TAIWAN)
T15323	VEGETALES EMPLEADOS EN MEDICINA TRADICIONAL NORPERUANA. RAMIREZ,VR: MOSTACERO,LJ: GARCIA,AE: MEJIA,CF: PELAEZ,PF: MEDINA,CD: MIRANDA,CH: BANCO AGRARIO DEL PERU & NACL UNIV TRUJILLO, TRUJILLO, PERU, JUNE, 1988 : 54PP- (1988) (UNIV TRUJILLO TRUJILLO PERU)
W02855	PLANTAS MEDICINALES, AROMATICAS O VENENOSAS DE CUBA. MINISTERIO DE AGRICULTURA, REPUBLICA DE CUBA, HAVANA. ROIG Y MESA,JT: BOOK 1945 : 872PP- (1945) (CUBA)
X00020	ACROSIN INHIBITORY PLANTS. SVOBODA,GH: PERSONAL COMMUNICATION : - (1979)(NO ADDRESS GIVEN)
ZZ1002	PLANTAS MEDICINAIS BRAZILEIRAS, CONHECIMENTOS POPULARES E CIENTIFICOS. ALMEIDA, DE, E. R. SAO PAULO: HEMUS EDITORA LTDA (1993)
ZZ1008	PLANTAS MEDICINALES DE USO POPULAR EN LA AMAZONIA PERUANA. MEJIA, KEMBER AND RENGIFO, ELSA. LIMA: AECI AND IIAP (1995)
ZZ1027	MEDICINAL AND MAGICAL PLANTS IN THE NORTHERN PERUVIAN ANDES. FEO, DE, V. FITOTERAPIA 63: 417-40 (1992)
ZZ1041	CATALOGO DE PLANTAS UTILES DE LA AMAZONIA PERUANA. RUTTER, R. A. YARINACocha, PERU: INSTITUTO LINGUISTICO DE VERANO (1990)
ZZ1043	VOCABULARY OF THE COMMON NAMES OF THE PERUVIAN FLORA AND CATALOG OF THE GENERA. SOUKUP, J: LIMA: EDITORIAL SALESIANO (1970)
ZZ1045	USEFUL PLANTS OF AMAZONIAN PERU. SECOND DRAFT. VASQUEZ, M. R. FILED WITH USDA'S NATIONAL AGRICULTURAL LIBRARY (1990)
ZZ1072	PLANTAS QUE AJUDAM O HOMEM: GUIA PRACTICO PARA A EPOCA ATUAL, 5 TH ED. CARIBE, DR. JOSE: CAMPOS, DR. JOSE MARIA. SAO PAULO, BRAZIL: EDITORA PENSAMENTO, LTDA (1997)
ZZ1076	AS SENSACIONAIS 50 PLANTAS MEDICINAIS: CAMPEA DE PODER CURATIVO, VOL 1, 4 TH ED. FRANCO, LELINGTON L. BRAZIL: EDITORA NATURISTA (1999)

ZZ1079	PLANTAS DE CURAM: CUDIE DA SUA SAUDE ATRAVES DE NATUREZ, 5 TH ED. MOREIRA, FREDERICO. SAO PAULO, BRAZIL: HEMUS EDITORA LTDA (1996)
ZZ1092	AGROMIDIA SOFTWARE. PLANTAS MEDICINAIS (CD-ROM). SAO PAULO, BRAZIL (2002)
ZZ1093	PERU-EL LIBRO DE LAS PLANTAS MAGICAS, 2 ND ED. ZADRA, DE. ADRIANA ALARCO. LIMA: CONCYTEC (2000)
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, N1: 102-123 JAM/FEB, BRAZIL (2001)
ZZ1099	MEDICINAL PLANTS OF BRAZIL. MORS, W. B.: RIZZINI, C. T: PEREIRA, N. A: ALGONAC, MICHIGAN, REFERENCE PUBLICATIONS, INC (2000)
AE1001	BIDENS PILOSA. HEILPFLANZEN. GERMANY. CD-ROM (1996)
AE1002	POTTER'S NEW CYCLOPEDIA OF BOTANICAL DRUGS AND PREPARATIONS. WREN, R: SIR ISAAC PITMAN & SONS, INC. LONDON (1956)
AE1003	MEDICINAL PLANTS OF CHINA. DUKE, J.A.: AYENSU, E.S: REFERENCE PUBLICATIONS, INC (1985)
AE1004	LEAF METHANOL EXTRACT OF BIDENS PILOSA PREVENTS AND ATTENUATES THE HYPERTENSION INDUCED BY HIGH-FRUCTOSE DIET IN WISTER RATS. DIMO, T: RAKOTONIRINA, SV: TAN, PV: AZAY, J: DONGA, E: CROS, G: J ETHNOPHARMACOL 83 3: 183-91 (2002) (DEPARTMENT OF ANIMAL BIOLOGY AND PHYSIOLOGY, FACULTY OF SCIENCE, UNIVERSITY OF YAOUNDE I, PO BOX 821, YOUNDE, CAMEROON)
AE1005	INVESTIGATION ON THE HYPOGLYCAEMIC EFFECTS OF EXTRACTS OF FOUR MEXICAN MEDICINAL PLANTS IN NORMAL AND ALLOXAN-DIABETIC MICE. ALARCON-AGUILAR, FJ: ROMAN-RAMOS, R: FLORES-SAENZ, JL: AGUIRRE-GARCIA, F: PHYTOTHER RES 16 4: 383-6 (2002) (DEPARTAMENTO DE CIENCIAS DE LA SALUD, DIVISION DE CIENCIAS BIOLOGICAS Y DE LA SALUD, UNIVERSIDAD AUTONOMA METROPOLITANA, UNDIAD IZTAPALAPA, MEXICO)
AE1006	THE SEARCH FOR NEW ANTIMALARIAL DRUGS FROM PLANTS USED TO TREAT FEVER AND MALARIA OR PLANTS RANDOMLY SELECTED; A REVIEW. KRETTLI, AU: ANDRADE-NETO, VF: BRANDAO, MG: FERRARI, WM: MEM INST OSWALDO CRUZ 96 8: 1033-42 (2001) (CENTRO DE PESQUISAS RENE RACHOU, FIOCRUZ, BELO HORIZONTE, MG, BRASIL)
AE1007	DRUG OR PLANT SUBSTANCES WHICH ANTAGONIZE VENOMS OR POTENTIATE ANTIVENINS. CHIPPAUX, JP: RAKOTONIRINA, VS: RAKOTONIRINA, A: DZIKOUK, G: BULL SOC PATHOL EXOT 90 4: 282-5 (1997) (ANTENNE ORSTOM AUPRES DU CENTRE PASTEUR DU CAMEROUN, ADRESSE ACTUELLE, NIAMEY, NIGER)
AE1008	THE HEPATOPROTECTIVE EFFECTS OF TAIWAN FOLK MEDICINE HAM-HONG-CHHO- IN RATS. CHIN, HW: LIN, CC: TANG, KS: AM J CHIN MED 24 3-4: 231-40 (1996) (FOO YIN COLLEGE OF NURSING AND MEDICAL TECHNOLOGY, KAOHSIUNG, TAIWAN)
AE1009	PHYTOCHEMISTRY OF PLANTS USED IN TRADITIONAL MEDICINE. PROCEEDINGS OF THE PHYTOCHEMICAL SOCIETY OF EUROPE. HOSTETTMANN, K: MARSTON, A: MAILLARD, M: HAMBURGER, M: CLARENDON PRESS: OXFORD (1995)
AE1010	SCREENING OF ZULU MEDICINAL PLANTS FOR PROSTAGLANDIN-SYNTHESIS INHIBITORS. JAGER, AK: HUTCHINGS, A: VAN STADEN , J: J ETHNOPHARMACOL 52 2: 95-100 (1996) (DEPARTMENT OF BOTANY, UNIVERSITY OF NATAL PIETERMARIZBURG, SCOTTSVILLE, SOUTH AFRICA)
AE1011	ANTI-INFLAMMATORY ACTIVITY OF TAIWAN FOLK MEDICINE 'HAM-HONG-CHHO' IN RATS. CHIH, HW: LIN, CC: TANG, KS: AM J CHIN MED 23 3-4: 273-278 (1995) (FOO YIN JUNIOR COLLEGE OF NURSING AND MEDICINAL TECHNOLOGY, KAOHSIUNG, TAIWAN)

AE1012	TEST OF CATECHOL, TANNIC ACID, BIDENS PILOSA, CROTON OIL, AND PHORBOL FOR COCARCINOGENESIS OF ESOPHAGEAL TUMORS INDUCED IN RATS BY METHYL-N-AMYLNITROSAMINE. MIRVISH, SS: SALMASI, S: LAWSON, TA: POUR, P: SUTHERLAND, D: J NATL CANCER INST 74 6: 1283-1290 (1985)
AE1013	ULTRAVIOLET-MEDIATED CYTOTOXIC ACTIVITY OF PHENYLHEPTATRIYNE FROM BIDENS PILOSA L. WAT, CK: BISWAS, RK: GRAHAM, EA; BOHM, L: TOWERS, GH: WAYGOOD, ER: J NAT PROD 42 1: 103-111 (1979)
AE1014	ANTI-INFLAMMATORY AND SPASMOLYTIC ACTIVITY OF EXTRACTS FROM DROSERAE HERBA. MELZIG, MF: PERTZ, HH: KRENN, L: PHYTOMEDICINE. 8 3: 225-9 (2001) (INSTITUT FUR PHARMAZIE, HUMBOLDT-UNIVERSITAT ZU BERLIN, GERMANY)
AE1015	ALPHA-TOCOPHERYL QUINONE IS CONVERTED INTO VITAMIN E IN MAN. MOORE, AN: INGOLD, KU: FREE RADIC BIOL MED. 22 5: 931-4 (1997) (STEACIE INSTITUTE FOR MOLECULAR SCIENCES, NATIONAL RESEARCH COUNCIL OF CANADA, OTTAWA, ONTARIO, CANADA)
AE1016	ANTIOXIDANT AND CYTOTOXIC TOCOPHERYL QUINONES IN NORMAL AND CANCER CELLS. THORNTON, DE: JONES, KH: JIANG, Z: ZHANG, H: LIU, G: CORNWELL, DG: FREE RADIC BIOL MED 18 6: 963-76 (1995) (DEPARTMENT OF MEDICAL BIOCHEMISTRY, OHIO STATE UNIVERSITY, COLUMBUS, USA)