

# Technical Data Report

for

## BRAZILIAN PEPPERTREE

*Schinus molle*

*Schinus terebinthifolius*



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# Brazilian Peppertree

**Family:** Anacardiaceae

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**Genus:** *Schinus*

**Species:** *molle*, *terebinthifolius*, *aroeira*

**Synonyms:** *Schinus angustifolius*, *S. areira*, *S. bituminosus*, *S. huigan*, *S. occidentalis*, *S. mellisii*, *S. antiarthriticus*, *Sarcotheca bahiensis*

**Common Names:** Brazilian peppertree, Peruvian peppertree, California peppertree, aroeira, aroeira salsa, escobilla, Peruvian mastic tree, mastic-tree, aguaribay, American pepper, anacahuita, castilla, false pepper, gualeguay, Jesuit's balsam, molle del Peru, mulli, pepper tree, pimentero, pimientillo, pirul

**Parts Used:** Fruit, bark, leaf

Brazilian peppertree is a shrubby tree with narrow, spiky leaves. It grows 4 to 10 m tall, with a trunk 25 to 35 cm in diameter. It produces an abundance of small flowers formed in panicles which bear a great many small, flesh-colored, berry-like fruits in December and January. It is indigenous to South and Central America, and can be found in semitropical and tropical regions of the United States and Africa. Three separate species of trees are used interchangeably (all called "peppertrees") in both North and South America: *Schinus molle*, *Schinus aroeira*, and *Schinus terebinthifolius*.

All parts of the tree have high oil and essential oil contents that produce a spicy, aromatic scent. The leaves of the Brazilian peppertree have such a high oil content that leaf pieces jerk and twist when placed in hot water as the oil is released. The berries, which have a peppery flavor, are used in syrups, vinegar, and beverages in Peru; are added to Chilean wines; and are dried and ground up for a pepper substitute in the tropics. The dried berries have also been used as an adulterant of black pepper in some countries.

Virtually all parts of this tropical tree have been used medicinally by indigenous peoples throughout the tropics, including its leaves, bark, fruit, seeds, resin, and oleoresin or balsam. The plant has a very long history of use and appears in ancient religious artifacts or on idols among some of the Chilean Amerindians. Throughout South and Central America, it is reported to be an astringent, antibacterial, balsamic, collyrium, diuretic, emmenagogue, stomachic, tonic, antiviral, and vulnerary. In Peru, the sap is used as a purgative and a diuretic, and the entire plant is used externally for fractures and as a topical antiseptic. The oleoresin is used externally as a cicatrizant for wounds and for toothaches, and it is taken internally for rheumatism, a folk disease called *suto*, and as a purgative. In South Africa, a leaf tea is used to treat colds, and a leaf decoction is inhaled for colds, hypertension, depression, and arrhythmia. In the Brazilian Amazon, a bark tea is used as a purgative; a bark-and-leaf tea is used as a stimulant and antidepressant. In Argentina, a decoction is made with the dried leaves and is taken for menstrual disorders (for its emmenagogue properties) and is also used for respiratory and urinary tract infections and disorders.

Brazilian peppertree is still employed in herbal medicine today in many countries. It is used for many conditions in the tropics, including amenorrhea, blennorrhagia, bronchitis, cataracts, dysmenorrhea, gingivitis, gonorrhoea, gout, ophthalmia, rheumatism, sores, swellings, tuberculosis, ulcers, urethritis, urogenital disorders, venereal diseases, warts, and wounds. In Brazilian herbal medicine today, the dried bark and/or leaves are employed for heart problems (hypertension and arrhythmia), infections of all sorts, and menstrual disorders with excessive bleeding, tumors, and general inflammation. A liquid extract or tincture prepared with the bark is used internally as a stimulant, tonic, and astringent, and externally for rheumatism, gout, and syphilis.

Phytochemical analysis of Brazilian peppertree reveals that the plant contains tannins, alkaloids, flavonoids, steroidal saponins, sterols, terpenes, gums, resins, and a large amount of essential oil.<sup>1-3</sup> The essential oil present in the leaves, bark, and fruit is a rich source of chemicals (over 50 constituents identified thus far, including biologically active *triterpenes* and *sesquiterpenes*). Some of these chemicals scientists have not seen before, and many of the plant's documented biological activities are attributed to its essential oil. The fruit can contain up to 5% essential oil, and the leaves can contain up to 2% essential oil.<sup>1,2</sup>

In laboratory tests, the essential oil (as well as leaf and bark extracts) have demonstrated potent antimicrobial properties. Brazilian peppertree has displayed good to very strong *in vitro* antifungal actions against numerous fungi, as well as candida.<sup>4-7</sup> One research group indicated that the antifungal action of the essential oil was more effective than Multifungin, an antifungal drug.<sup>6</sup> The essential oil and leaves have clinically demonstrated *in vitro* antibacterial activity against numerous bacterial strains (which probably explains why it is an herbal remedy for so many infectious conditions in its native countries).<sup>5-10</sup> In 1996, a U.S. patent was awarded for an essential oil preparation of Brazilian peppertree as a topical bactericidal medicine used against *Pseudomonas* and *Staphylococcus* for humans and animals, and as an ear, nose, and/or throat preparation against bacteria.<sup>11</sup> The same company was awarded another patent in 1997 for a similar preparation used as a topical antibacterial wound cleanser.<sup>12</sup> In much earlier *in vitro* tests, a leaf extract of Brazilian peppertree demonstrated antiviral actions against several plant viruses.<sup>13</sup> In addition to these documented antimicrobial properties, Brazilian peppertree passed an anticancer plant screening program in 1976 by demonstrating antitumorous actions.<sup>14</sup> More recently (in 2002), researchers in Argentina documented that it was cytotoxic *in vitro* against a human liver cancer cell line.<sup>15</sup>

Over the years, several research groups have conducted animal studies on Brazilian peppertree that have further substantiated some of its many traditional uses in herbal medicine. A fruit extract and a leaf extract were shown to produce hypotensive activity in dogs and rats,<sup>16,17</sup> as well as uterine stimulant activity in guinea pigs and rabbits.<sup>17,18</sup> Leaf extracts have clinically demonstrated analgesic activity in mice<sup>19</sup> and antispasmodic properties in rats and guinea pigs (including uterine antispasmodic actions).<sup>16,20</sup> In 1974, the anti-inflammatory effect of Brazilian peppertree was documented; the herb was used to treat 100 patients with chronic cervicitis and vaginitis.<sup>21</sup> In 1995 and 1996, other researchers documented the anti-inflammatory properties of this herb once again.<sup>22-24</sup>

A monograph published in 1976 on Brazilian peppertree's essential oil indicated no toxicity in animals and humans ingesting or applying the essential oil topically.<sup>25</sup> Today, herbalists and natural health practitioners in both North and South America use Brazilian peppertree mostly for colds, flu, and other upper respiratory infections; as a heart remedy for hypertension and for arrhythmia; for fungal infections and candida; and as a female balancing herb for numerous menstrual disorders and menstrual cramps.

**Documented Properties and Actions:** Analgesic, antibacterial, antidepressant, antifungal, anti-inflammatory, antimicrobial, antispasmodic, antiviral, astringent, balsamic, cytotoxic, diuretic, emmenagogue, expectorant, hypotensive, insecticide, purgative, stomachic, tonic, uterine stimulant, vulnerary.

**Main Phytochemicals:** Amyrin, behenic acid, bergamont, bicyclogermacrene, bourbonene, cadinene, cadinol, calacorene, calamenediol, calamenene, camphene, car-3-ene, carvacrol, caryophyllene, cerotic acid, copaene, croweacin, cubebene, cyanidins, cymene, elemene, elemol, elemonic acid, eudesmol, fisetin, gallic acid, geraniol butyrate, germacrene, germacrone, guaiene, gurjunene, heptacosanoic acid, humulene, laccase, lanosta, limonene, linalool, linoleic acid, malvalic acid, masticadienoic acid, masticadienonic acid, masticadienonic acid, muurolene, muurolol, myrcene, nerol hexanoate, octacosanoic acid, oleic acid, paeonidin, palmitic acid, pentacosanoic acid, phellandrene, phenol, pinene, piperine, piperitol, protocatechuic

acid, quercetin, quercitrin, raffinose, sabinene, sitosterol, spathulene, terpinene, terpineol, terpinolene, tricosanoic acid

**Traditional Remedy:** One-half cup of a standard dried bark or leaf decoction twice daily or 1–2 ml of a 4:1 tincture 2-3 daily.

**Contraindications:** This plant has been documented with uterine stimulant and uterine antispasmodic actions in animal studies and should therefore not be used in pregnancy.

Chronic, long-term use of this plant is not advised, as it may lead to die-off of friendly bacteria in the digestive tract due to its strong antibacterial and antifungal properties. Supplementing the diet with probiotics and digestive enzymes is advisable if this plant is used for longer than 30 days.

**Drug Interactions:** None reported; however, this plant has been documented with hypotensive actions in animal studies. In light of such, it is conceivable that the use of this plant may potentiate antihypertensive drugs.

### WORLDWIDE ETHNOBOTANICAL USES

Country	Uses
Argentina	Anti-inflammatory, diarrhea, dysmenorrhea, emmenagogue, menstrual disorders, respiratory tract infections, urinary tract infections, vulnerary
Brazil	Antidepressant, antispasmodic, astringent, balsamic, blennorrhagia, bronchitis, cough, cystitis, diarrhea, dysmenorrhea, fever, grippe, hemorrhage, inflammation, menstrual disorders, menorrhagia, ophthalmic illnesses, purgative, respiratory tract disorders, rheumatism, stimulant, tonic, tumor, urethritis, urinary tract disorders
Colombia	Diarrhea, hemoptysis, rheumatism
Lacandonia	Masticatory, purgative, spice, tea
Mexico	Asthma, astringent, balsamic, blennorrhagia, bronchitis, cataract, colic, collyrium, conjunctivitis, cough, digestive disorders, foot, gonorrhea, grippe, gum, liqueur, masticatory, mouth, ophthalmia, preventative, purgative, rheumatism, sore, stomachache, toothache, tuberculosis, tumor, ulcer, urogenital, venereal disease, vulnerary, warts, wound
Paraguay	Blennorrhagia, diuretic, emmenagogue, sores, urethritis, wound
Peru	Antipyretic, antiseptic, cicatrizant, diuretic, fractures, purgative, rheumatism, toothache, tumor, wart
South Africa	Analgesic, antidepressant, anti-inflammatory, arrhythmia, colds, cough, gout, hypertension, rheumatism
Turkey	Diuretic, expectorant, gonorrhea, masticatory, purgative, stomachic, tonic
Uruguay	Amenorrhea, antiseptic, cicatrizant, dysmenorrhea, rheumatism, vulnerary
Elsewhere	Amenorrhea, bronchitis, diuretic, dysmenorrhea, edema, emmenagogue, expectorant, eye, gingivitis, gout, hypertension, piscicide, purgative, rheumatism, sore, stomachic, swelling, urogenital, venereal disease, viricide

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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 Brazilian Peppertree (Schinus molle)

Plant Part & Location	Documented Ethnic Use	Type Extract / Route	Used For	Ref #
Bark Brazil	Used as a purgative.	Hot H2O Ext / Oral	Human Adult	A06590
Bark Colombia	Used for diarrhea, hemoptysis and rheumatism.	Not Stated	Human Adult	AF1014
Bark + Leaf Brazil	Used as a stimulant and as an antidepressant.	H2O Ext / Oral	Human Adult	K20642
Bark + Leaf Brazil	Used for fever, urinary tract disorders and pain, cystitis, urethritis, blenorrhagia, coughs, bronchitis, upper respiratory problems, grippe, diarrhea, and menstrual disorders with excessive bleeding.	H2O Ext / Oral	Human Adult	AF1008
Bark + Leaf Brazil	Used for general inflammation.	H2O Ext / Oral	Human Adult	AF1009
Entire Plant Argentina	Used as an emmenagogue.	Plant / Oral	Human Female	L12768
Fruit Uruguay	Used for amenorrhea and dysmenorrhea.	Fruit / Oral	Human Female	W00209
Dried Fruit Canary Islands	Used for antiedema.	Fruit / Oral	Human Adult	T15880
Fruit + Leaf Iraq	Used as an emmenagogue.	H2O Ext / Oral	Human Female	A04391
Gum South Africa	Used for gout and rheumatism.	Hot H2O Ext / Oral	Human Adult	A05825
Leaf Argentina	Used to provoke delayed menstruation.	Hot H2O Ext / Oral	Human Female	W01322
Leaf South Africa	Used to treat colds and coughs.	Infusion / Oral	Human Adult	K25301
Leaf South Africa	Used as an analgesic, anti-inflammatory, antihypertensive, antidepressant, and antiarrhythmic. Used to treat colds and coughs.	Decoction / Inhalation	Human Adult	K25301
Leaf Uruguay	Used to treat amenorrhea and dysmenorrhea.	Hot H2O Ext / Oral	Human Female	W00209
Dried Leaf Argentina	Used for diarrhea, respiratory tract infections and urinary tract infections.	Decoction / Oral	Human Adult	K17523
Dried Leaf Spain	Used for antihypertensive activity.	Leaves / Oral	Human Adult	J15736
Dried Leaf Uruguay	Used as an antirheumatic.	Infusion / Oral	Human Adult	L15672

Plant Part & Location	Documented Ethnic Use	Type Extract / Route	Used For	Ref #
Fresh Leaf Spain	Used as a hypotensive drug.	Infusion / Oral	Human Adult	J11623
Dried Leaf + Stem Brazil	Used as an antispasmodic. Used to treat rheumatism and menstrual pain.	Decoction / Oral	Human Adult	L05437
Dried Leaf + Stem Brazil	Used for ophthalmic illnesses.	Infusion / Ophthalmic	Human Adult	L05437
Not Specified Argentina	Used as an emmenagogue.	Hot H2O Ext / Oral	Human Female	A03467
Not Specified Argentina	Used as an emmenagogue.	Hot H2O Ext / Oral	Human Female	J01423
Not Specified Argentina	Used as a menses regulator for menstrual disorders.	Hot H2O Ext / Oral	Human Female	T15375
Not Specified Paraguay	Used as an emmenagogue.	Hot H2O Ext / Oral	Human Female	J01423
Not Specified Uruguay	Used for amenorrhea of nervous origin and dysmenorrhea.	Hot H2O Ext / Oral	Human Female	A04492
Entire Plant Mexico	Used as an astringent, balsamic, gum, liqueur, masticatory, collyrium, preventative, purgative and vulnerary for aposteme, asthma, blennorrhagia, bronchitis, cataract, colic, conjunctivitis, cough, digestive disorders, gonorrhoea, grippe, ophthalmia, rheumatism, sores, stomachache, toothache, tuberculosis, tumors, ulcers, urogenital disorders, venereal disease, and wounds.	Various / Oral & External	Human Adult	AF1014
Entire Plant Argentina	Used as a vulnerary.	Plant / External	Human Adult	L12768
Dried Leaf Uruguay	Used as a vulnerary, antiseptic, and cicatrizant.	Infusion / External	Human Adult	L15672
Dried Leaf + Stem Brazil	Used to treat hemorrhages.	Decoction / External	Human Adult	L05437
Entire Plant Peru	Used as an antipyretic and for fractures.	Decoction / External	Human Adult	K27043
Entire Plant Peru	Used as a topical antiseptic.	Decoction / External	Human Adult	AF1007
Entire Plant Peru	Used as a veterinary antiseptic.	Decoction / External	Domestic Animals	K27043
Entire Plant Argentina	Used as an anti-inflammatory.	Plant / External	Human Adult	L12768



Plant Part & Location	Documented Ethnic Use	Type Extract / Route	Used For	Ref #
Oleoresin Peru	Used as a cicatrizant.	Hot H2O Ext / External	Human Adult	T15323
Oleoresin Peru	Used for toothache, rheumatism, and as a purgative.	Hot H2O Ext / Oral	Human Adult	T15323
Oleoresin Peru	Used medicinally for folk disease "suto."	Hot H2O Ext / Oral	Human Adult	T15323
Sap Spain	Used as a diuretic.	Sap / Oral	Human Adult	J15736
Sap Peru	Taken internally as a purgative and diuretic.	Sap / Oral	Human Adult	W01851

## Presence of Compounds in Brazilian Peppertree (Schinus molle)

Compound	Chemical Type	Plant Part	Plant Origin	Quantity	Ref #
Amyrin, alpha:	Triterpene	Entire Plant	Egypt	Not stated	T04147
Behenic Acid	Lipid	Fruit	Italy	Not stated	M01614
Bergamont-trans-ene, alpha:	Sesquiterpene	Fruit Essential Oil	Not Stated	Not Stated	M10800
Bicyclogermacrene	Sesquiterpene	Leaf Essential Oil	Uruguay	29.2%	J14452
Bourbonene	Sesquiterpene	Fruit Essential Oil	Not Stated	Not Stated	M10800
Cadinene, delta:	Sesquiterpene	Fruit Essential Oil Fruit Essential Oil Leaf Essential Oil	USA-CA Not Stated Uruguay	09.11% Not Stated 01.26%	T08301 M10800 J14452
Cadinol, alpha:	Sesquiterpene	Fruit Essential Oil	USA-CA	06.64%	T08301
Cadinol, delta:	Sesquiterpene	Fruit Essential Oil	USA-CA	00.69%	T08301
Cadinol, t:	Sesquiterpene	Fruit Essential Oil	USA-CA	01.39%	T08301
Calacorene, alpha:	Sesquiterpene	Fruit Essential Oil	USA-CA	00.26%	T08301
Calacorene, gamma:	Sesquiterpene	Fruit Essential Oil	USA-CA	00.15%	T08301
Calamenediol, iso: Pre	Sesquiterpene	Leaf	Not Stated	00.06%	M13851
Calamenene	Sesquiterpene	Fruit Essential Oil	USA-CA	00.28%	T08301
Calcium	Inorganic	Gum	Uruguay	Not Stated	W00209
Camphene	Monoterpene	Fruit Essential Oil Fruit Essential Oil Leaf Essential Oil	USA Not Stated USA-CA	Not Stated Not Stated Not Stated	W01801 M10800 T08301
Car-3-ene	Monoterpene	Essential Oil	Uruguay	Not Stated	W00209

Compound	Chemical Type	Plant Part	Plant Origin	Quantity	Ref #
Carvacrol	Monoterpene	Essential Oil Fruit Essential Oil Fruit Essential Oil Leaf Essential Oil	Uruguay Not Stated Not Stated Argentina	Not Stated Not Stated Not Stated Not Stated	W00209 M10800 A02760 W01632
Caryophyllene Oxide	Sesquiterpene	Leaf Essential Oil	Uruguay	00.53%	J14452
Caryophyllene, beta:	Sesquiterpene	Fruit Essential Oil Fruit Essential Oil Leaf Essential Oil	USA-CA Not Stated Uruguay	02.02% Not Stated 07.68%	T08301 M10800 J14452
Cerotic Acid	Lipid	Fruit	Italy	Not Stated	M01614
Copaene, alpha:	Sesquiterpene	Fruit Essential Oil	USA-CA	00.12%	T08301
Croweacin	Phenylpropanoid	Fruit Essential Oil	Argentina	Not Stated	W01632
Cubebene, alpha:	Sesquiterpene	Fruit Essential Oil	USA-CA	00.13%	T08301
Cyanidin-3-o-alpha-l-galactoside	Flavonoid	Fruit	Argentina	Not Stated	J08044
Cyanidin-3-o-beta-d-rutinoside	Flavonoid	Fruit	Argentina	Not Stated	J08044
Cymene, para:	Monoterpene	Fruit Essential Oil Fruit Essential Oil Fruit Essential Oil	USA-CA USA Not Stated	02.93% Not Stated Not Stated	T08301 W01801 M10800
Elemene, beta:	Sesquiterpene	Fruit Essential Oil	USA-CA	00.52%	T08301
Elemol	Sesquiterpene	Fruit Essential Oil	USA-CA	01.32%	T08301
Elemonic Acid, beta:	Triterpene	Seed	Mexico	00.0308%	M24026

Compound	Chemical Type	Plant Part	Plant Origin	Quantity	Ref #
Essential Oil ( <i>Schinus molle</i> )	Essential Oil	Fruit + Leaf Oil	South Africa	Not Stated	A03080
		Leaf	Algeria	Not Stated	W01625
		Fruit	Not Stated	04.0%	A02760
		Fruit	Uruguay	04.8%	A02855
		Fruit	Argentina	04.8%	W01632
		Fruit + Leaf	South Africa	Not Stated	W01625
		Fruit	Mexico	Not Stated	W01625
		Leaf	Mexico	Not Stated	W01625
		Gum	Uruguay	Not Stated	W00209
		Leaf	Argentina	03.0%	W01632
Eudesmol, alpha:	Sesquiterpene	Fruit Essential Oil	USA-CA	00.90%	T08301
Eudesmol, beta:	Sesquiterpene	Fruit Essential Oil	USA-CA	01.01%	T08301
Eudesmol, gamma:	Sesquiterpene	Fruit Essential Oil	USA-CA	01.04%	T08301
Fisetin	Flavonol	Bark	Egypt (cult)	Not Stated	M20865
Gallic Acid	Benzenoid	Leaf & Bark	Egypt (cult)	Not Stated	M20865
Geraniol Butyrate	Monoterpene	Fruit Essential Oil	USA-CA	00.34%	T08301
Germacrene D	Sesquiterpene	Fruit Essential Oil	Not Stated	Not Stated	M10800
		Leaf Essential Oil	Uruguay	12.08%	J14452
Germacrone	Sesquiterpene	Leaf Essential Oil	Uruguay	00.75%	J14452
Guaiene, beta:	Sesquiterpene	Fruit Essential Oil	USA-CA	00.22%	T08301
Gurjunene, alpha:	Sesquiterpene	Fruit Essential Oil	USA-CA	00.71%	T08301
Heptacosanoic Acid	Lipid	Fruit	Italy	Not Stated	M01614
Humulene, alpha:	Sesquiterpene	Fruit Essential Oil	USA-CA	00.58%	T08301
		Leaf Essential Oil	Uruguay	00.57%	J14452
Laccase	Proteid	Shoots	Israel	Not Stated	T01016
Lanosta-8-cis-24-dien-26-oic acid,3 alpha-hydroxy-21-oxo: 13-alpha-14-Beta-17-alpha:- (20-r):	Triterpene	Leaf	Spain	00.03%	J15736

Compound	Chemical Type	Plant Part	Plant Origin	Quantity	Ref #
Lanosta-8-cis-24-dien-26-oic acid,3: alpha-hydroxy: 13-alpha-14-beta-17 -alpha: (20-s):	Triterpene	Leaf	Spain	00.01714%	J15736
Lignoceric Acid	Lipid	Leaf + Stem Leaf + Stem Fruit	Mexico Mexico Italy	Not Stated Not Stated Not Stated	A02708 W01546 M01614
Limonene	Monoterpene	Fruit Essential Oil Fruit Essential Oil Leaf Essential Oil	USA-CA Not Stated Uruguay	07.23% Not Stated 00.88%	T08301 M10800 J14452
Limonene, (+)	Monoterpene	Fruit Essential Oil	USA	Not Stated	W01801
Linalool	Monoterpene	Leaf Essential Oil	Uruguay	00.71%	J14452
Linoleic Acid	Lipid	Seed Oil	Australia (cult)	57.0%	T01965
Malvalic Acid, dihydro	Lipid	Seed Oil	Not Stated	Not Stated	M19312
Masticadienoic Acid, iso	Triterpene	Fruit	Italy	Not Stated	M01614
Masticadienolalic Acid, iso: 3-epi	Sesquiterpene	Seed	Mexico	Not Stated	M24026
Masticadienolic Acid, iso	Triterpene	Fruit Seed	Sicily Mexico	Not Stated 00.069%	W00010 M24026
Masticadienolic Acid, iso: 3-epi	Triterpene	Seed Fruit	Mexico Italy	00.0207% Not Stated	M24026 M01614
Masticadienonic Acid, iso	Triterpene	Fruit Fruit	Sicily Italy	00.875% Not Stated	T01429 M01614
Masticadienonic Acid, iso: 3-epi	Triterpene	Fruit	Italy	Not Stated	M01614
Masticadienonic Acid	Triterpene	Fruit	Italy	Not Stated	M01614
Masticadienonic Acid, iso	Triterpene	Fruit Fruit Seed	Sicily Sicily Mexico	00.475% Not Stated 00.0127%	T01429 W00010 M24026
Menth-cis-2-en-1-ol	Monoterpene	Leaf Essential Oil	Ethiopia	Not Stated	J13498

Compound	Chemical Type	Plant Part	Plant Origin	Quantity	Ref #
Muurolene, alpha	Sesquiterpene	Fruit Essential Oil	USA-CA	01.48%	T08301
Muurolene, gamma	Sesquiterpene	Fruit Essential Oil	USA-CA	00.48%	T08301
Muurolol, t	Sesquiterpene	Fruit Essential Oil	USA-CA	02.32%	T08301
Myrcene	Monoterpene	Fruit Essential Oil	USA-CA	20.41%	T08301
		Fruit Essential Oil	USA	Not Stated	W01801
		Fruit Essential Oil	Not Stated	Not Stated	M10800
		Leaf Essential Oil	Uruguay	05.46%	J14452
Nerol Hexanoate	Monoterpene	Fruit Essential Oil	USA-CA	00.28%	T08301
Octacosanoic Acid	Lipid	Fruit	Italy		M01614
Octanoic Acid Methyl Ester	Lipid	Fruit Essential Oil	USA-CA	00.95%	T08301
		Fruit Essential Oil	Not Stated	Not Stated	M10800
Oleic Acid	Lipid	Seed Oil	Australia (cult)	23.3%	T01965
Paeonidin-3-o-beta-d-glucoside	Flavonoid	Fruit	Argentina	Not Stated	J08044
Palmitic Acid	Lipid	Seed Oil	Australia (cult)	13.0%	T01965
Pentacosanoic Acid	Lipid	Fruit	Italy	Not Stated	M01614
Pentan-1-ol,3-methyl: formate	Alkanol	Fruit Essential Oil	Argentina (cult)	Not Stated	W01632
Peroxidase	Proteid	Gum	Uruguay	Not Stated	W00209
Phellandrene, alpha	Monoterpene	Fruit Essential Oil	Not Stated	Not Stated	M10800
		Fruit Essential Oil	Argentina (cult)	Not Stated	W01632
		Fruit Essential Oil	USA	17.34%	T08301
		Fruit Essential Oil	Argentina (cult)	Not Stated	W01801
		Leaf Essential Oil	Not Stated	Not Stated	W01632
Phellandrene, beta	Monoterpene	Fruit Essential Oil	Not Stated	Not Stated	A02760
		Fruit Essential Oil	Argentina (cult)	Not Stated	W01632
		Fruit Essential Oil	USA-CA	Not Stated	W01801
		Fruit Essential Oil	Uruguay	06.21%	T08301
		Leaf Essential Oil	Not Stated	00.3%	J14452

Compound	Chemical Type	Plant Part	Plant Origin	Quantity	Ref #
Phenol, ortho-ethyl	Benzenoid	Fruit Essential Oil Fruit Essential Oil	Argentina (cult) Not Stated	Not Stated Not Stated	W01632 M10800
Pinene	Monoterpene	Essential Oil Fruit Essential Oil	Uruguay Not Stated	Not Stated Not Stated	W00209 A02760
Pinene, alpha	Monoterpene	Fruit Essential Oil Fruit Essential Oil Fruit Essential Oil Leaf Essential Oil	USA Not Stated USA-CA Argentina (cult)	Not Stated Not Stated 02.66% Not Stated	W01801 M10800 T08301 W01632
Pinene, beta	Monoterpene	Leaf Essential Oil Fruit Essential Oil Fruit Essential Oil Fruit Essential Oil Fruit Essential Oil	Uruguay Not Stated USA USA-CA Argentina (cult)	13.95% Not Stated Not Stated 00.17% Not Stated	J14452 M10800 W01801 T08301 W01632
Piperine	Alkaloid	Fruit Fruit	Peru Brazil	Not Stated Not Stated	W01851 A06590
Piperitol, trans	Monoterpene	Leaf Essential Oil	Ethiopia	Not Stated	J13498
Protocatechuic Acid	Benzenoid	Bark	Egypt (cult)	Not Stated	M20865
Quercetin	Flavonol	Leaf Leaf + Stem Leaf	Egypt (cult) Mexico Argentina	Not Stated Not Stated 00.8%	M20865 W01546 A02784
Quercitrin, iso	Flavonol	Leaf	Argentina	00.07%	A02784
Raffinose	Carbohydrate	Leaf	Egypt (cult)	Not Stated	M20865
Rutin	Flavonol	Leaf	Argentina	00.15%	A02784
Sabinene	Monoterpene	Fruit Essential Oil Leaf Essential Oil Fruit Essential Oil	Not Stated Uruguay USA-CA	Not Stated 12.92% Not Stated	M10800 J14452 T08301
Sitosterol, beta	Steroid	Leaf + Stem Entire Plant Leaf + Stem	Mexico Egypt Mexico	Not Stated Not Stated Not Stated	A02708 T04147 W01546

Compound	Chemical Type	Plant Part	Plant Origin	Quantity	Ref #
Spathulene, beta	Sesquiterpene	Fruit Fruit Essential Oil	Mexico Not Stated	Not Stated Not Stated	W01816 M10800
Sucrose	Carbohydrate	Leaf Bark	Egypt (cult) Egypt (cult)	Not Stated Not Stated	M20865 M20865
Terpinen-4-ol	Monoterpene	Leaf Essential Oil	Uruguay	10.57%	J14452
Terpinene, alpha	Monoterpene	Fruit Essential Oil	Not Stated	Not Stated	M10800
Terpinene, gamma	Monoterpene	Fruit Essential Oil Leaf Essential Oil	Not Stated Uruguay	Not Stated 01.13%	M10800 J14452
Terpineol, alpha	Monoterpene	Leaf Essential Oil Fruit Essential Oil Fruit Essential Oil	Uruguay Not Stated Argentina (cult)	01.25% Not Stated Not Stated	J14452 M10800 W01632
Terpineol, alpha: formate	Monoterpene	Fruit Essential Oil	Argentina (cult)	Not Stated	W01632
Terpinolene	Monoterpene	Fruit Essential Oil	USA-CA	00.10%	T08301
Tricosanoic Acid	Lipid	Fruit Fruit Essential Oil	Italy Not Stated	Not Stated Not Stated	M10800 M01614

**Other Phytochemical Screening:**

Alkaloids Absent	Leaf + Stem	A02708	Sterols and/or Triterpenes Present	Aerial Parts	A04080
	Aerial Parts	A04080	Tannins (ferric chloride test) Present	Part Not Stated	A04964
Alkaloids Present	Leaf + Stem	A03779	Tannins (gelatin salt-block test) Absent	Aerial Parts	A04080
Flavonoids Present	Leaf	M20865	Tannins (gelatin-precipitation test) Absent	Aerial Parts	A04080
	Bark	M20865	Tannins (gelatin-precipitation test) Present	Leaf	M20865
Steroidal Saponins Present	Leaf + Stem	W01546		Bark	M20865



## Biological Activities for Extracts of Brazilian Peppertree (*Schinus molle*)

Plant Part / Origin	Activity Tested For	Type Extract	Method	Dosage	Results	Notes/Organism tested	Ref #
Fresh Leaf Spain	Toxicity Assessment (quantitative)	CHCL2OH Ext	IP Mouse	LD50=1.3 gm/kg			J11320
Fruit Essential Oil	Toxicity Assessment (quantitative)	Essential Oil	Gastric Intubation Rat	LD50>5.0 mg/kg	Inactive		M10800
Fruit Essential Oil	Toxicity Assessment (quantitative)	Essential Oil	Intradermal Rat	LD50>5.0 mg/kg	Inactive		M10800
Not Stated Brazil	Mitogenic Activity	Infusion	Cell Culture	Not stated	Inactive	Splenocytes (mouse)	L07194
Fruit Essential Oil	Irritant Activity	Essential Oil	External Mice (nude)	Not stated	Inactive		M10800
Fruit Essential Oil	Irritant Activity	Essential Oil	External Pig	Not stated	Inactive		M10800
Fruit Essential Oil	Irritant Activity	Essential Oil	External Rabbit	Not stated	Weak Activity		M10800
Fruit Essential Oil	Irritant Activity	Patch Test	Human Adult	Not stated	Inactive		M10800
Fruit Essential Oil	Phototoxicity	Essential Oil	External Mice(nude)	Not stated	Inactive		M10800
Fruit Essential Oil	Phototoxicity	Essential Oil	External Pig	Not stated	Inactive		M10800
Fruit Essential Oil	Sensitization (skin)	Essential Oil	External Human	Not stated	Inactive		M10800
Leaf + Stem Chile	Antitumor Activity	ETOH-H2O (1:1) Ext	IP Mouse	Not stated	Active	Leukemia-P388	A00678
Not Stated Argentina	Cytotoxic Activity	MEOH Ext	Cell Culture	IC50=50 mcg/ml	Active	Human hepatocellular carcinoma cell line Hep G2	AF1001
Leaf + Stem Chile	Cytotoxic Activity	ETOH-H2O (1:1) Ext	Cell Culture	Ed50 <20.0 mcg/ml	Active	CA-9KB	A00678
Dried Leaf + Stem Brazil	Cytotoxic Activity	MEOH(75%) Ext	Cell Culture	ED50=1000 mcg/ml	Inactive	Cells-vero	L05437

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Plant Part / Origin	Activity Tested For	Type Extract	Method	Dosage	Results	Notes/Organism tested	Ref #
Fruit Japan	Tumor Promotion Inhibition	ETOAC Ext	Cell Culture	50.0 mcg/ml	Equivocal	vs. tetradecanoyl phorbol acetate-induced acetate phospholipid synthesis.	J14743
Fruit Japan	Tumor Promotion Inhibition	Hexane Ext	Cell Culture	50.0 mcg/ml	Weak Activity	vs. tetradecanoyl phorbol acetate-induced acetate phospholipid synthesis.	J14743
Fruit Japan	Tumor Promotion Inhibition	MEOH Ext	Cell Culture	50.0 mcg/ml	Inactive	vs. tetradecanoyl phorbol acetate-induced acetate phospholipid synthesis.	J14743
Fruit Pakistan	Uterine Stimulant Effect	H2O Ext H2O Ext H2O Ext H2O Ext	Rabbit Rabbit Rat female Rat female	Not stated 100.0 ml/liter 30.0 ml/liter 30.0 ml/liter	Active Inactive Inactive Active	Uterus (preg). Uterus (preg). Uterus (non-preg). Uterus (preg).	A03484
Not Stated Argentina	Uterine Stimulant Effect	H2O Ext	Guinea Pig	1-500	Active	Uterus (unspec.cond).	A03467
Not Stated	Antiimplantation Effect	ETOH(95%) Ext	SC Rat	Not stated	Active		X01111
Not Stated Brazil	Colony-stimulating Factor Production Stimulation	Infusion	IP Mouse	0.5 ml/animal	Active	vs. IPS-induced proliferation	L07194
Fruit Japan	Antiinflammatory Activity	ETOAC Ext MEOH Ext Hexane Ext	External Mouse	0.2 ml/animal	Active	vs. tetradecanoyl phorbol acetate-induced acetate phospholipid synthesis and vs. TPA-induced ear inflammation.	J14743
Not Stated Spain	Anti-inflammatory Activity	Not stated	Not stated	Not stated	Active	Competitive inhibitor of phospholipase A2.	AF1002
Not Stated	Anti-inflammatory Activity	Hydroalcoholic Ext	Human (female)	Not stated	Active	Healing of 100 patients with chronic cervicitis and cervico-vaginitis	AF1003
Fruit Not stated	Anti-inflammatory Activity	Not stated	Not stated	Not stated	Active	Inhibited phospholipase A2 in human synovial fluid.	AF1005
Fresh Leaf Spain	Analgesic Activity	CHCL2OH Ext	IP Mouse	130.0 mg/kg	Active	vs. acetic acid-induced writhing and vs.mechanical stimulus-induced pain.	J11320

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Plant Part / Origin	Activity Tested For	Type Extract	Method	Dosage	Results	Notes/Organism tested	Ref #
Fresh Leaf Spain	Analgesic Activity	CHCL2OH Ext	IP Mouse	130.0 mg/kg	Inactive	vs. hot plate method.	J11320
Fresh Leaf Spain	Antispasmodic Activity	CH2CL2 Ext	Guinea Pig (Ileum)	10.0 mcg/ml	Active	vs. histamine-induced contractions. (Statistical data in report indicating significant results.)	L08263
Fresh Leaf Spain	Antispasmodic Activity	CH2CL2 Ext	Rat Female Uterus	10.0 mcg/ml	Active	vs. serotonin-induced contractions. (Statistical data in report indicating significant results.)	L08263
Fresh Leaf Spain	Antispasmodic Activity	CH2CL2 Ext	Rat Duodenum	100.0 mcg/ml	Active	vs. ACH-induced contractions.	L08263
Fresh Leaf Spain	Spasmolytic Activity	CH2CL2 Ext	IV Rat	100.0 mcg/ml	Active	vs. norepinephrine-induced contractions.	J11623
Fruit Pakistan	Hypotensive Activity	H2O Ext	IV Dog	Not stated	Active		A03484
Fresh Leaf Spain	Hypotensive Activity	CH2CL2 Ext MEOH Ext	IV Rat IV Rat	15.0 mg/kg 66.0 mg/kg	Active Active		J11623 J11623
Fresh Leaf Spain	Hypotensive Activity	CH2CL2 Ext	IV Rat	15.0 mg/kg	Active	vs. norepinephrine-induced hypertension.	J11623
Fresh Leaf Spain	Locomotor Activity Decrease	CHCL2OH Ext	IP Mouse	130.0 mg/kg	Active		J11320
Aerial Parts	Aldose Reductase Inhibition	MEOH Ext	Not stated	IC50 = 6.4 mcg/ml	Weak Activity		K27394
Aerial Parts	Platelet Aggregation Inhibition	MEOH Ext	Not stated	100.0 mcg/ml	Inactive	vs. adenosine diphosphate arachidonic acid and collagen stimulation.	K27394
Aerial Parts	Venotonic Activity	MEOH Ext	Not Stated	100.0 mcg/ml	Inactive	vs. platelet aggregating factor stimulation.	K27394
Leaf Essential Oil India	Antifungal Activity	Essential Oil	Agar Plate	400.0 ppm	Strong Activity	<i>Microsporum gypseum</i> <i>Trichophyton rubrum</i> <i>Trichophyton mentagrophytes</i>	T11947

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Plant Part / Origin	Activity Tested For	Type Extract	Method	Dosage	Results	Notes/Organism tested	Ref #
Aerial Parts Cuba	Antimicrobial Activity	Not stated	Agar Plate	Not stated	Active	<i>Staphylococcus aureus</i> <i>Bacillus subtilis</i> <i>Escherichia coli</i> <i>Pseudomonas aeruginosa</i> <i>Candida albicans</i>	AF1004
Not Stated Brazil	Antimicrobial Activity	ETOH Ext	Rat	Not stated	Active	<i>Enterococcus</i> <i>Bacillus corineforme</i> <i>Streptococcus viridans</i> (Statistical data in report indicating significant results.)	AF1006
Leaf Essential Oil Zimbabwe	Antifungal Activity	Essential Oil	Agar Plate	0.10 mg/ml	Active	<i>Candida albicans</i> <i>Aspergillus niger</i> <i>Aspergillus flavus</i> <i>Aspergillus ochraceus</i> <i>Aspergillus parasiticus</i> <i>Alternaria alternata</i> <i>Chaetomium species</i> <i>Fusarium culmorum</i> <i>Geotrichum candidum</i> <i>Penicillium citrinum</i>	K26244
Leaf Essential Oil India	Antifungal Activity	Essential Oil	Agar Plate	500.0 ppm	Active	Several fungi <i>Aspergillus alternata</i> <i>Aspergillus flavus</i> <i>Penicillium italicum</i>	T11947
Entire Plant Argentina	Antifungal Activity	ETOH (100%) Ext	Agar Plate	0.8 mg/ml	Inactive	<i>Lenzites elegans</i> <i>Ganoderma applanatum</i> , <i>Schizophyllum commune</i> <i>Pycnoporus sanguineus</i>	L12768
Entire Plant Argentina	Antifungal Activity	ETOH (100%) Ext	Agar Plate	0.8 mg/ml	Weak Activity	<i>Aspergillus niger</i> <i>Fusarium oxysporum</i> <i>Penicillium notatum</i> <i>Trichoderma sp</i>	L12768
Essential Oil Egypt	Antifungal Activity	Essential Oil	Agar Plate	Undiluted	Inactive	<i>Penicillium cyclopium</i> <i>Trichoderma viride</i> <i>Aspergillus aegyptiacus</i>	T06640
Leaf Essential Oil Egypt	Antifungal Activity	Essential Oil	Agar Plate	Not stated	Active Inactive Inactive	<i>Penicillium cyclopium</i> <i>Pseudomonas herbicola</i> <i>Trichoderma viride</i>	T14976

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Plant Part / Origin	Activity Tested For	Type Extract	Method	Dosage	Results	Notes/Organism tested	Ref #
Entire Plant Argentina	Antiyeast Activity	ETOH (100%) Ext	Agar Plate	0.2 mg / plate	Inactive Active	<i>Rhodotorula sp.</i> <i>Saccharomyces carlsbergensis</i>	L12768
Dried Leaf Uruguay	Antiyeast Activity	ETOH (70%) Ext H2O Ext	Agar Plate	10.0 mg/ml	Inactive	<i>Candida albicans</i>	L15672
Leaf Essential Oil Zimbabwe	Antibacterial Activity	Essential Oil	Agar Plate	1:1	Active	<i>Brevibacterium linens</i> <i>Bacillus subtilis</i> <i>Aeromonas hydrophila</i> <i>Escherichia coli</i> <i>Klebsiella pneumoniae</i> <i>Beneckea natriegens</i> <i>Alcaligenes faecalis</i> <i>Brevibacterium linens</i> <i>Citrobacter freundii</i> <i>Brochothrix thermosphacta</i> <i>Clostridium sporogenes</i> <i>Lactobacillus plantarum</i> <i>Serratia marcescens</i> <i>Leuconostoc cremoris</i> <i>Proteus vulgaris</i> <i>Moraxella species</i> <i>Pseudomonas aeruginosa</i> <i>Yersinia enterocolitica</i> <i>Acinetobacter calcoaceticus</i>	K26244
Essential Oil Egypt	Antibacterial Activity	Essential Oil	Agar Plate	Undiluted	Active	<i>Pseudomonas aeruginosa</i> <i>Staphylococcus aureus</i>	T06640
Leaf Essential Oil Egypt	Antibacterial Activity	Essential Oil	Agar Plate	Not stated	Active Active Inactive	<i>Pseudomonas aeruginosa</i> <i>Staphylococcus aureus</i> <i>Bacillus aereus</i>	T14976
Essential Oil Egypt	Antibacterial Activity	Essential Oil	Agar Plate	Undiluted	Inactive	<i>Bacillus cereus</i> <i>Escherichia coli</i>	T06640
Dried Leaf Argentina	Antibacterial Activity	Decoction H2O Ext Hot H2O Ext Hot H2O Ext Hot H2O Ext	Agar Plate	Not stated 1.0 mg/ml 62.5 mg/ml 62.5 mg/ml 62.5 mg/ml	Inactive	<i>Pseudomonas aeruginosa</i> <i>Salmonella typhi</i> <i>Escherichia coli</i> <i>Staphylococcus aureus</i> <i>Aspergillus niger</i>	K17523 J11153 K14683 K14683 K14683
Leaf Essential Oil Zimbabwe	Antibacterial Activity	Essential Oil	Agar Plate	1:1	Weak Activity	<i>Enterobacter aerogenes</i> <i>Erwinia carotovora</i>	K26244

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Plant Part / Origin	Activity Tested For	Type Extract	Method	Dosage	Results	Notes/Organism tested	Ref #
Leaf Essential Oil Zimbabwe	Antibacterial Activity	Essential Oil	Agar Plate	1:1	Inactive	<i>Micrococcus luteus</i> <i>Staphylococcus aureus</i> <i>Streptococcus faecalis</i>	K26244
Dried Leaf Uruguay	Antimycobacterial Activity	ETOH(70%)Ext H2O Ext	Agar Plate	10.0 mg/ml	Inactive	<i>Mycobacterium smegmatis</i>	L15672
Dried Leaf Uruguay	Antibacterial Activity	ETOH (70%) Ext	Agar Plate	10.0 mg/ml	Equivocal Equivocal Equivocal Equivocal Equivocal Equivocal Inactive Inactive	<i>Bacillus subtilis</i> <i>Escherichia coli</i> <i>Klebsiella pneumoniae</i> <i>Micrococcus luteus</i> <i>Pseudomonas aeruginosa</i> <i>Staphylococcus aureus</i> <i>Escherichia coli</i> <i>Salmonella typhimurium</i>	L15672
Dried Leaf Uruguay	Antibacterial Activity	H2O Ext	Agar Plate	10.0 mg/ml	Equivocal Equivocal Equivocal Equivocal Inactive Inactive Inactive Inactive	<i>Escherichia coli</i> <i>Micrococcus luteus</i> <i>Pseudomonas aeruginosa</i> <i>Staphylococcus aureus</i> <i>Bacillus subtilis</i> <i>Escherichia coli</i> <i>Klebsiella pneumoniae</i> <i>Salmonella typhimurium</i>	L15672
Leaf Bolivia	Antiviral Activity	H2O Ext	Cell Culture	0.50 ml	Inactive	vs. MT-2 T-lymphoblastoid cells infected with HIV	K29837
Leaf Juice	Antiviral Activity	Juice	Cell Culture	Not stated	Active	Virus - potato 5 Virus - tobacco mosaic	A03627
Dried Leaf + Stem Brazil	Antiviral Activity	MEOH (75%) Ext	Cell Culture	ED50=100mg/ml	Inactive	Virus - <i>Herpes simplex</i> 1	L05437
Fresh Leaf + Stem Greece	Antiphage Activity	H2O Ext	Agar Plate	10 mg/plate	Inactive	6 various bacteriophages	L15988
Leaf Essential Oil Ethiopia	Feeding Deterrent(insect)	Essential Oil	Not stated	Not stated	Active	<i>Musca domestica</i> (common housefly)	J13498
Leaf Essential Oil Ethiopia	Insect Repellent Activity	Essential Oil	Not stated	Not stated	Active	<i>Musca domestica</i> (common housefly)	J13498
Essential Oil Bolivia	Insecticide Activity	Essential Oil	Not stated	1.0 mg/insect	Active	<i>Triatoma infestans</i>	L18411
Seed	Insecticide Activity	Not stated	Plant	Not stated	Active		A03466

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Plant Part / Origin	Activity Tested For	Type Extract	Method	Dosage	Results	Notes/Organism tested	Ref #
Seed Essential Oil Bolivia	Insecticide Activity	Essential Oil	Not stated	50.0 mg/liter	Inactive	<i>Aedes aegypti</i>	L15839
Not Stated Sweden	Calcium Antagonistic Effect	Fraction: T-Cadinol	Rat aorta	Not stated	Active	vs. K(+)-induced contractions.	AF1010
Not Stated Sweden	Antispasmodic Activity	Fraction: T-Cadinol	Rat aorta	Not stated	Active	vs. K(+)-induced contractions.	AF1011
Not Stated Japan	Calcium Antagonistic Effect	Fraction Alpha-eudesmol	Rat	Not stated	Active		AF1012
Not Stated Japan	Neuroprotective Activity	Fraction Alpha-eudesmol	Rat	Not stated	Active	vs. brain (rat) edema.	AF1012
Not Stated UK	Antimicrobial Activity	Fraction: Carvacrol	Cell Culture	2 mM	Active Active Active Active	<i>Listeria monocytogenes</i> <i>Salmonella enterica</i> <i>Staphylococcus aureus</i> Yeast	AF1013

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<b>A04391</b>	MEDICINAL PLANTS OF IRAQ. MIN. AGR. TECHN BULL NO 15. GOUT PRESS, BAGHDAD. AL-RAWI,A: CHAKRAVARTY,HL: BOOK : - (1964) (NO ADDRESS GIVEN)



<b>A04492</b>	INDIGENOUS MEDICINAL PLANTS OF URUGUAY. GONZALES,M: LOMBARDO,A: REV FARM 88 : 297- (1946) (NO ADDRESS GIVEN)
<b>A04964</b>	VEGETABLE TANNING AGENTS OF ARGENTINE. PONDAL,ML: RUMI,TJ: AN ASOC QUIM ARGENT 11 : 301- (1923) (NO ADDRESS GIVEN)
<b>A04978</b>	CONTRIBUTIONS TO THE MICROCHEMISTRY OF PLANTS. XVIII. PROTEIN CRYSTALS IN THE SECRETORY DUCTS OF THE ANACARDIACEAE. MOLISCH,H: BER DTSCH BOT GES 49 : 324- (1931) (NO ADDRESS GIVEN)
<b>A05825</b>	THE MEDICINAL AND POISONOUS PLANTS OF SOUTHERN AND EASTERN AFRICA. 2ND ED, E.+S. LIVINGSTONE,LTD.,LONDON. WATT,JM: BREYER-BRANDWIJK,MG: BOOK : - (1962) ( SOUTH AFRICAN INST MED RES JOHANNESBURG SOUTH AFRICA)
<b>A06590</b>	DICTIONARY OF THE ECONOMIC PRODUCTS OF THE MALAY PENINSULA. MINISTRY OF AGRICULTURE AND COOPERATIVES, KUALA LUMPUR, MALAYSIA. VOLUME II. BURKILL,IH: BOOK : 1- (1966) (NO ADDRESS GIVEN)
<b>J01423</b>	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)
<b>J08044</b>	ANTHOCYANINS FROM FRUITS OF SCHINUS MOLLE VAR AREIRA (AGUARIBAY). AZIZ-UR-RAHMAN: TOMAS,MA: FRONTERA,MA: N ASOC QUIM ARGENT 62 : 169-170 (1974) (DEPT QUIM ING QUIM LAB QUIM ORG UNIV NAC SUR BAHIA BLANCA ARGENTINA)
<b>J11153</b>	IN VITRO ANTIBACTERIAL ACTIVITY OF ARGENTINE FOLK MEDICINAL PLANTS AGAINST SALMONELLA TYPHI. PEREZ,C: ANESINI,C: J ETHNOPHARMACOL 44 1: 41-46 (1994) (CATEDRA FARMA FAC ODONTOLOGIA UNIV BUENOS AIRES BUENOS AIRES ARGENTINA)
<b>J11320</b>	ANALGESIC AND CENTRAL DEPRESSOR EFFECTS OF THE DICHLOROMETHANOL EXTRACT FROM SCHINUS MOLLE L. BARRACHINA,MD: BELLO,R: MARTINEZ-CUESTA,MA: PRIMO-YUFERA,E: ESPLUGES,J: PHYTOTHER RES 11 4: 317-319 (1997) (DEPT FARM FAC MED ODONTOL UNIV VALENCIA VALENCIA SPAIN)
<b>J11623</b>	EFFECTS ON ARTERIAL BLOOD PRESSURE OF THE METHANOL AND DICHLOROMETHANOL EXTRACTS FROM SCHIMUS MOLLE L. IN RATS. BELLO,R: BARRACHINA,MD: MORENO,L: PRIMO-YUFERA,E: ESPLUGUES,J: PHYTOTHER RES 10 7: 634-635 (1996) (DEPT FARMACOL FAC MED ONDONTOL UNIV VALENCIS SPAIN)
<b>J13498</b>	ISOLATION AND IDENTIFICATION OF HOUSE FLY, MUSCA DOMESTICA L., REPELLENTS FROM PEPPER TREE, SCHINUS MOLLE L. WIMALARATNE,PDC: SLESSOR,KN: BORDEN,JH: CHONG,LJ: ABATE,T: J CHEM ECOL 22 1: 49-59 (1996) (DEP CHEM SIMON FRASER UNIV BURNABY V5A 1S6 CANADA)
<b>J14452</b>	ESSENTIAL OILS FROM LEAVES OF SCHINUS MOLLE AND S.LENTISCIFOLIUS OF URUGUAYAN ORIGIN. ROSSINI,C: MENENDEZ,P: DELLACASSA,E: MOYNA,P: J ESSENT OIL RES 8 1: 71-73 (1996) (LAB PROD NAT FAC CIENC MONTEVIDEO URUGUAY)
<b>J14743</b>	STUDIES ON CANCER BIO-CHEMOPREVENTION OF NATURAL RESOURCES. X. INHIBITORY EFFECT OF SPICES ON TPA-ENHANCED 3H-CHOLINE INCORPORATION IN PHOSPHOLIPID OF C3H10T1/2 CELLS AND ON TPA-INDUCED EAR EDEMA. OKUYAMA,T: MATSUDA,M: MASUDA,Y: BABA,M: MASUBUCHI,H: ADACHI,M: OKADA,Y: HASHIMOTO,T: ZOU,LB: NISHINO,H: ZHONGHUA YAOXUE ZAZHI 47 5: 421-430 (1995) (DEPT PHYTOCHEM PHARMACOGNOSY MEIJI COLL PHARM TOKYO 154 JAPAN)

<b>J15736</b>	ISOLATION OF ANGIOTENSIN CONVERTING ENZYME (ACE) INHIBITING TRITERPENES FROM SCHINUS MOLLE. OLAFSSON,K: JAROSZEWSKI,JW: SMITT,UW: NYMAN,U: PLANTA MED 63 4: 352-355 (1997) (CHEM DEPT ROYAL VET & AGR UNIV COPENHAGEN DK-1871 DENMARK)
<b>K14683</b>	SCREENING OF PLANTS USED IN ARGENTINE FOLK MEDICINE FOR ANTIMICROBIAL ACTIVITY. ANESINI,C: PEREZ,C: J ETHNOPHARMACOL 39 2: 119-128 (1993) (CATEDRA FARMACOL FAC ODONTOL UNIV BUENOS AIRES BUENOS AIRES ARGENTINA)
<b>K17523</b>	INHIBITION OF PSEUDOMONAS AERUGINOSA BY ARGENTINEAN MEDICINAL PLANTS. PEREZ,C: ANESINI,C: FITOTERAPIA 65 2: 169-172 (1994) (CAT FARMACOL FAC ODONTOL UNIV BUENOS AIRES BUENOS AIRES ARGENTINA)
<b>K20642</b>	TRADITIONAL AMAZONIAN NERVE TONICS AS ANTIDEPRESSANT AGENTS: CHAUNOCHITON KAPPLERI: A CASE STUDY. ELISABETSKY,E: FIGUEIREDO,W: OLIVERIA,G: J HERBS SPICES MED PLANTS 1 1/2: 125-162 (1992) (DEPT FARMACOL UNIV FED RIO GRANDE DO SUL PORTO ALEGRE 90 0650 BRAZIL)
<b>K25301</b>	TRADITIONAL HERBAL MEDICINE IN TRANSKEI. BHAT,RB: JACOBS,TV: J ETHNOPHARMACOL 48 1: 7-12 (1995)(DEPT BOTAN UNIV TRANSKEI UMTATA 5100 SOUTH AFRICA)
<b>K26244</b>	ANTIMICROBIAL ACTIVITY OF ESSENTIAL OIL FROM SCHINUS MOLLE LINN. GUNDIDZA,M: CENT AFR J MED 39 11: 231-234 (1993) (DEPT PHAR FAC MED UNIV ZIMBABWE HARARE ZIMBABWE)
<b>K27043</b>	MEDICINAL PLANTS FROM PAMPALLAKTA: AN ANDEAN COMMUNITY IN CUZCO (PERU). YELASCO-NEGUERUELA,A: PEREZ-ALONSO,MJ: ESENARRO ABARCA,G: FITOTERAPIA 66 5: 447-462 (1995) (DEPT PLANT BIOL FAC BIOL COMPLUTENSE UNIV MADRID SPAIN)
<b>K27394</b>	SEARCH FOR NATURALLY OCCURRING SUBSTANCES FOR PREVENTION AGAINST THE COMPLICATIONS OF DIABETES; INHIBITORY EFFECT ON ALDOSE REDUCTASE AND PLATELET AGGREGATION. OKADA,Y: MIYAUCH,N: SUZUKI,K: KOBAYASHI,T: TSUTSUI,C: MAYUZUMI,K: OKUYAMA,T: NATURAL MED 48 4: 324-329 (1994) (DEPT OF PHYTOCHEM MEIJI COLLEGE OF PHARM TOKYO JAPAN)
<b>K29837</b>	DRUG LEADS FROM THE KALLAWAYA HERBALISTS OF BOLIVIA. 1. BACKGROUND, RATIONALE, PROTOCOL AND ANTI-HIV ACTIVITY. ABDEL-MALEK,S: BASTIEN,JW: MAHLER,Wf: JIA,Q: REINECKE,MG: ROBINSON JR,WE: SHU,YH: ZALLES-ASIN,J: J ETHNOPHARMACOL 50 3: 157-166 (1996) (DEPT CHEM TEXAS CHRISTIAN UNIV TEXAS 76129 USA)
<b>L05437</b>	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)
<b>L07194</b>	COLONY STIMULATING FACTOR-INDUCING ACTIVITY OF ISOFLAVONE C-GLUCOSIDES FROM THE BARK OF DALBERGIA MONETARIA. KAWAQUCHI,K: ALVES,SDM: WATANABE,T: KIKUCHI,S: SATAKE,M: KUMAZAWA,Y: PLANTA MED 64 7: 653-655 (1998) (SCH PHARM SCI KITASATO UNIV KANAGAWA 228 JAPAN)
<b>L08263</b>	IN VITRO PHARMACOLOGICAL EVALUATION OF THE DICHLOROMETHANOL EXTRACT FROM SCHINUS MOLLE L. BELLO,R: BELTRAN,B: MORENO,L: CALATUD,S: PRIMOT-YUFERA,E: ESPLUGUES,J: PHYTOTHER RES 12 7: 523-525 (1998) (DEPT PHARMACOL FAC MED UNIV VALENCIA VALENCIA SPAIN)

<b>L12768</b>	SCREENING ANTIFUNGAL ACTIVITES OF SELECTED MEDICINAL PLANTS. QUIROGA,EN: SAMPIETRO,AR: VATTUONE,MA: J ETHNOPHARMACOL 74 1: 89-96 (2001) ( FAC BIOQUIM QUIM FARM UNIV NAACL TUCUMAN TUCUMAN 4000 ARGENTINA)
<b>L15672</b>	SCREENING OF URUGUAYAN MEDICINAL PLANTS FOR ANTIMICROBIAL ACTIVITY. PART II. OLANO,I: ALONSO,E: CERDEIRAS,MP: FERNANDEZ,J: FERREIRA,F: MOYNA,P: SOUBES,M: VAZQUEZ,A: VERO,S: BASSAGODA,MJ: J ETHNOPHARMACOL 53 : 111-115 (1996) (CATEDRA FARMACO PRODUCTOS NATU FACULTY QUIMICA MONTEVIDEO URUGUAY)
<b>L15839</b>	INSECTICIDAL ACTIVITY OF ESSENTIAL OILS ON AEDES AEGYPTI LARVAE. CHANTRAINE,JM: LAURENT,D: BALLIVIAN,C: SAAVEDRA,G: IBANEZ,R: VILASECA,LA: PHYTOTHER RES 12 5: 350-354 (1998) ( ORSTOM COCHABAMBA BOLIVIA)
<b>L15988</b>	SCREENING FOR ANTIPHAGE ACTIVITY OF PLANTS GROWING IN GREECE. YANNITSAROS,A: FITOTERAPIA 67 3: 205-214 (1996) (DEPT EXPERIMENTAL PHARMACOLOGY ATHENS UNIV SCH MED ATHENS GREECE)
<b>L18411</b>	INSECTICIDAL ACTIVITY OF ESSENTIAL OILS ON TRIATOMA INFESTANS. LAURENT,D: VILASECA,LA: CHANTRAINE,JM: BALLIVIAN,C: SAAVEDRA,G: IBANEZ,R: PHYTOTHER RES 11 4: 285-290 (1997) ( ORSTOM COCHABAMBA BOLIVIA)
<b>M01614</b>	THE TRITERPENOID ACIDS OF SCHINUS MOLLE. POZZO-BALBI,T: NOBILE,L: SCAPINI,G: CINI,M: PHYTOCHEMISTRY 17 : 2107-2110 (1978) (IST CHIM FARM TOSSICOL FAC FARM UNIV DEGLI STUDI BOLOGNA BOLOGNA ITALY)
<b>M10800</b>	MONOGRAPHS ON FRAGRANCE RAW MATERIALS. SCHINUS MOLLE OIL. OPDYKE,DLJ: FOOD COSMET TOXICOL 14 : 861-. (1976) (NO ADDRESS GIVEN)
<b>M13851</b>	PREISOCALAMENEDIOL, A CONSTITUENT OF SCHINUS MOLLE. DELVALLE G,DM: SCHWENKER,G: PLANTA MED 53 2: 230-. (1987) (PHARM CHEM INST UNIV HEIDELBERG HEIDELBERG D-6900 GERMANY)
<b>M19312</b>	THE OCCURRENCE OF DIHYDROMALVALIC ACID IN SOME SEED OILS. VICKERY,JR: J AMER OIL CHEM SOC 58 6: 731-732 (1981) (CSIRO DIV FOOD RES NORTH RYDE N.S.W. 2113 AUSTRALIA)
<b>M20865</b>	LOCAL PLANTS AS POTENTIAL SOURCES OF TANNINS IN EGYPT. PART IV. (ACERACEAE TO FLACOURTIACEAE). SALEH,NAM: EL SHERBEINY,AEA: EL SISSI,HI: QUAL PLANT MATER VEG 17 4: 384-394 (1969) ( NATIONAL RESEARCH CENTER CAIRO EGYPT)
<b>M24026</b>	BETA-ELEMONIC ACID FROM SEEDS OF SCHINUS MOLLE. NAVARRETE,A: ALPIDE,P: BALLESTEROS,N: REV LATINOAMER QUIM 20 2: 69-70 (1989) (DEPT PREPARA AGRI AREA QUIM UNIV AUTONOMA CHAPINGO CHAPINGO ESTADO MEXICO)
<b>T01016</b>	LACCASE IN ANACARDIACEAE. JOEL,DM: MARBACH,I: MAYER,AM: PHYTOCHEMISTRY 17 : 796-797 (1978) (DEPT BOTANY HEBREW UNIV JERUSALEM ISRAEL)
<b>T01429</b>	TRITERPENOID KETO ACIDS FROM SCHINUS MOLLE L. POZZO-BALBI,T: NOBILE,L: SCAPINI,G: CINI,M: GAZZ CHIM ITAL 106 : 785-789 (1976) ( FAC FARM INST CHIM FARM + TOXICOL UNIV BOLOGNA BOLOGNA I-40136 ITALY)
<b>T01965</b>	THE FATTY ACID COMPOSITION OF SEED OILS FROM TEN PLANT FAMILIES WITH PARTICULAR REFERENCE TO CYCLOPROPENE AND DIHYDROSTERCULIC ACIDS. VICKERY,JR: J AMER OIL CHEM SOC 57 : 87-91 (1980) ( DIV FOOD RES C.S.I.R.O. NORTH RYDE NEW SOUTH WA 2113 AUSTRALIA)

<b>T04147</b>	PRELIMINARY PHYTOCHEMICAL STUDY OF SCHINUS MOLLE L. GROWING IN EGYPT. HASHIM,FM: EL-HOSSARY,GA: EL-SAKHAWY,FS: EGYPT J PHARM SCI 19 : 235-246 (1980) (DEPT PHARMACOGNOSY FAC PHARMACY CAIRO UNIV CAIRO 11562 EGYPT)
<b>T06640</b>	ANTIMICROBIAL ACTIVITY OF SOME EGYPTIAN AROMATIC PLANTS. ROSS,SA: EL-KELTAWI,NE: MEGALLA,SE: FITOTERAPIA 51 : 201-205 (1980) (DEPARTMENT OF PHARMACOGNOSY ASSIUT UNIVERSITY ASSIUT EGYPT)
<b>T08301</b>	THE VOLATILE CONSTITUENTS OF SCHINUS MOLLE L. BERNHARD,RA: SHIBAMOTO,T: YAMAGUCHI,K: WHITE,E: J AGR FOOD CHEM 31 2: 463-466 (1983) (DEPT FOOD SCI & TECHNOL UNIV CALIFORNIA DAVIS CA 95616 USA)
<b>T11947</b>	SCHINUS MOLLE: A NEW SOURCE OF NATURAL FUNGICIDIC. DIKSHIT,A: NAQVI,AA: HUSAIN,A: APPL ENVIRON MICROBIOL 51 5: 1085-1088 (1986) ( CENTRAL INST MED + AROMATIC PL LUCKNOW UP 226 010 INDIA)
<b>T14976</b>	ANTIMICROBIAL ACTIVITY OF SOME EGYPTIAN AROMATIC PLANTS. EL-KELTAWI,NE: MEGALLA,SE: ROSS,SA: HERBA POL 26 4: 245-250 (1980) (BOT HORTICUL & PHARMACOG DEPT ASSIUT UNIV ASSIUT EGYPT)
<b>T15323</b>	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)
<b>T15375</b>	A SURVEY OF PLANTS WITH ANTIFERTILITY PROPERTIES DESCRIBED IN THE SOUTH AMERICAN FOLK MEDICINE. GONZALEZ,F: SILVA,M: ABSTR PRINCESS CONGRESS I BANGKOK THAILAND 10-13 DECEMBER 1987 : 20PP-. (1987) (LAB QUIM PROD NAT UNIV CONCEPCION CONCEPCION CHILE)
<b>T15880</b>	NEW CONTRIBUTION TO THE ETHNOPHARMACOLOGICAL STUDY OF THE CANARY ISLANDS. DARIAS,V: BRAVO,L: RABANAL,R: SANCHEZ MATEO,C: GONZALEZ LUIS,RM: HERNANDEZ PEREZ,AM: J ETHNOPHARMACOL 25 1: 77-92 (1989) (DEPT FARMACOG FARMACOD FAC FARM UNIV LA LAGUNA TENERIFE CANARY IS SPAIN)
<b>W00010</b>	METHYL ESTER OF (13-ALPHA,14-BETA,17-ALPHA,20S,24Z)-3-OXO-LANOSTA-8,24-DIEN-26-OIC ACID (C31 H48 O3). MANOTTI LANFREDI,AM: TIRIPICCHIO,A: TIRIPICCHIO CAMELLINI,M: SCAPINI,G: CRYST STRUCT COMMUN 4 : 551-556 (1975) ( INST CHIM GEN & INORGANIC UNIV PARMA PARMA I-43100 ITALY)
<b>W00209</b>	SCHINUS MOLLE. GONZALEZ,M: AN FAC QUIM FARM UNIV MONTEVIDEO 1 : 133-204 (1931) ( UNIV MONTEVIDEO MONTEVIDEO URUGUAY)
<b>W01322</b>	MEDICINAL HERBS OF ARGENTINA, 10TH ED. ANTOGNAZZI & CO., ROSARIO. SAGGESE ,D: BOOK : 1-189 (1959) (NO ADDRESS GIVEN)
<b>W01546</b>	LIGNOCERIC ACID AND OTHER COMPOUNDS OF SCHINUS MOLLE. DOMINGUEZ,XA: CARMONA,JF: DE VENEGAS,RB: PHYTOCHEMISTRY 10 : 1687-. (1971) (DEPT QUIM I.T.E.S.M. MONTERREY N.L. 64849 MEXICO)
<b>W01625</b>	SOUTH AFRICAN PEPPER TREE OIL. BRUCKNER VAN DER LINGEN,GW: PERF ESSENT OIL REC 21 : 154- (1930) (NO ADDRESS GIVEN)

<b>W01632</b>	SCHINUS MOLLE. STUDY OF THE COMPOSITION OF THE ESSENTIAL OILS OBTAINED FROM THE BERRIES AND FROM THE LEAVES AND FROM THE OLEORESIN EXTRACTED FROM THE BERRIES. MONTES,AL: BANDINELLI,CO: DAVIDSON,E: AN SOC CIENT ARGENT 172 1/2: 3-16 (1961) (CATEDRA BROATOLOGIA + ANAL IND FAC CIENC EXACT + NAT UNIV BUENOS AIRES BUENOS AIRES ARGENTINA)
<b>W01801</b>	THE ESSENTIAL OILS OF SCHINUS MOLLE: THE TERPENE HYDROCARBON FRACTION. BERNHARD,RA: WROLSTAD,R: J FOOD SCI 28 : 59-63 (1963) (DEPT FOOD SCI + TECHNOL UNIV CALIFORNIA DAVIS CA USA)
<b>W01816</b>	BETA-SPATHULENE: A NEW SESQUITERPENE IN SCHINUS MOLLE OIL. TERHUNE,SJ: HOGG,JW: LAWRENCE,BM: PHYTOCHEMISTRY 13 : 865-866 (1974) ( STANGE CANADA LTD MISSISSAUGA ONTARIO L4V 1C7 CANADA)
<b>W01851</b>	THE PEPPER TREE SCHINUS MOLLE. KRAMER,FL: ECON BOT 11 : 322-326 (1957) (DEPT GEOLOGY-GEOGRAPHY MACKAY SCH MINES UNIV NEVADA RENO NV USA)
<b>X01111</b>	TESTING OF SELECTED PLANTS FOR ANTIFERTILITY ACTIVITY. VON CZEPANSKI,C: PERSONAL COMMUNICATION 1977 : - (1977) (SCHRERING AG BERLIN GERMANY)
<b>AF1001</b>	CYTOTOXIC EFFECT OF ARGENTINE MEDICINAL PLANT EXTRACTS ON HUMAN HEPATOCELLULAR CARCINOMA CELL LINE. RUFFA,MJ: FERRARO,G: WAGNER,ML: CALCAGNO,ML: CAMPOS,RH: CAVALLARO,L: J ETHNOPHARMACOL: 79 3: 335-9 (2002) (FACULTAD DE FARMACIA Y BIOQUIJMICA, UNIVERSIDAD DE BUENOS AIRES, ARGENTINA)
<b>AF1002</b>	TWO FUNGAL LANOSTANE DERIVATIVES AS PHOSPHOLIPASE A2 INHIBITORS. CUELLA,MJ: GINER,RM: RECIO,MC: JUST,MJ: MANEZ,S: RIOS,JL. J NAT PROD. 59 10: 977-9 (1996)(DEPT DE FARMACOLOGICA, UNIVERSITAT DE VALENCIA, SPAIN)
<b>AF1003</b>	ANTIINFLAMMATORY AND WOUND HEALING ACTION OF SCHINUS AROEIRA VELL IN PATIENTS WITH CERVICITIS AND CERVICO-VAGINITIS. CARNEIRO WANICK,M: EJACYREMA ALVES,W: REV INST ANTIBIOT. 14 1-2: 105-6 (1974)
<b>AF1004</b>	SCREENING OF SOME CUBAN MEDICINAL PLANTS FOR ANTIMICROBIAL ACTIVITY. MARTINEZ,MJ: BETANCOURT,J: ALONSO-GONZALEZ,N: JAUREGUI,A: J ETHNOPHARMACOL. 52 3: 171-4 (1996) (LABORATORIO CENTRAL DE FARMACOLOGICA, FACULTAD DE MEDICINA DE. SALVADOR ALLENDE, CINDAD DE LA HABANA, CUBA)
<b>AF1005</b>	TWO STRUCTURALLY RELATED RITERPENIDS 1 AND 2 FROM PINK PEPPERCORN (BERRIES OF SCHINUS TEREBINTHIFOLIUM) JAIN,MK: YU,BZ: ROGERS,JM: SMITH,AE: BOGER,ET: OSTRANDER,RL: RHEINGOLD,AL: PHYTOCHEMISTRY; 39 3: 537-47 (1995) (DEPT CHEM AND BIOCHEM, UNI OF DELAWARE, USA)
<b>AF1006</b>	MEDICINAL PLANTS IN THE HEALING OF DRY SOCKET IN RATS: MICROBIOLOGICAL AND MICROSCOPIC ANALYSIS. DE MELO JUNIOR EJ: RAPOSO,MJ: LISBOA NETO,JA: DINIZ,MF: MARCELINO JUNIOR CA: SANT'ANA,AE: PHYTOMEDICINE. 9 2: 109-16 (2002) (DEPT PATHOLOGY, FED UNI OF ALAGOAS, MACEIO-AL, BRAZIL)
<b>AF1007</b>	MEDICINAL PLANTS FROM PAMPALLAKTA: AN ANDEAN COMMUNITY IN CUZCO (PERU). YELASCO-NEGUERUELA,A: FITOTERAPIA: 66 5: 447-462 (1995)
<b>AF1008</b>	MANUAL DE FITOTERAPIA. 2 <sup>ND</sup> ED. COIMBRA,RAUL: EDITORA CEJUP: BELEM, BRAZIL. (1994)

<b>AF1009</b>	DICIONARIO DAS PLANTAS UTEIS DO BRAZIL, 5 <sup>TH</sup> ED. CRUZ, GL: BERTRAND: RIO DE JANEIRO, BRAZIL. (1995)
<b>AF1010</b>	CALCIUM ANTAGONISTIC PROPERTIES OF THE SESQUITERPENE T-CARDINOL AND RELATED SUBSTANCES: STRUCTURE-ACTIVITY STUDIES. ZYGMUNT,PM: LARSSON,B: STERNER,O: VINGE,E: HOGESTATT,ED: PHARMACOL TOXICOL 73 1: 3-9 (1993) (DEPT CLIN PHARM, UNI HOSPITAL LUND, SWEDEN)
<b>AF1011</b>	CALCIUM ANTAGONISTIC PROPERTIES OF THE SESQUITERPENE T-CARDINOL: A COMPARISON WITH NIMODIPINE IN THE ISOLATED RAT AORTA. CLAESON,P: ZYGMUNT,P: HOGESTATT,ED: PHARMACOL TOXICOL 69 3: 173-7 (1991) (DEPT PHARMAC, UPPSALA UNI, SWEDEN)
<b>AF1012</b>	OMEGA-AGATOXIN IVA-SENSITIVE CA(2+) CHANNEL BLOCKER, ALPHA-EUDESOL, PROTECTS AGAINST BRAIN INJURY AFTER FOCAL ISCHEMIA IN RATS. ASAKURA,K: MATSUO,Y: OSHIMA,T: KIHARA,T: MINAGAWA,K: ARAKI,Y: KAGAWA,K: KANEMASA,T: NINOMIYA,M: EUR J PHARMACOL 394 1: 57-65 (2000) (DISCOVERY RESEARCH LAB, FUTABA-CHO, TOYONAKA, JAPAN)
<b>AF1013</b>	EFFICACY OF CHITOSAN, CARVACROL, AND A HYDROGEN PEROXIDE-BASED BIOCIDES AGAINST FOODBORNE MICROORGANISMS IN SUSPENSION AND ADHERED TO STAINLESS STEEL. KNOWLES,J: ROLLER,S: J FOOD PROT 64 10: 1542-8 (2001) (SCHOOL APP SCI, SOUTH BANK UNI, LONDON, UK)
<b>AF1014</b>	HANDBOOK OF MEDICINAL HERBS. JAMES DUKE. (1985) BOOK; (CRC PRESS: BOCA RATON, FL)

# Clinical Abstracts

**Phytomedicine 2002 Mar;9(2):109-16**

**Medicinal plants in the healing of dry socket in rats: microbiological and microscopic analysis.**

de Melo Junior, E. J., et al.

The effectiveness of medicinal herbs as antimicrobial agents was tested on isolated microorganisms from an induced alveolitis and on alveolitis in rats. Sixteen ethanolic extracts from plants were prepared and tested. The plant materials were selected from ethnobotanic data and the best result was obtained with *Schinus terebinthifolius* Raddi. The activity on *Enterococcus*, *Bacillus corineforme*, *Streptococcus viridans* and *S. beta-hemolytic* was better than the one presented by the antibiotic currently used for the treatment of alveolitis. The extract of *Schinus terebinthifolius* Raddi has shown good wound-healing activity by histological analysis.

**J Ethnopharmacol 2002 Mar;79(3):335-9**

**Cytotoxic effect of Argentine medicinal plant extracts on human hepatocellular carcinoma cell line.**

Ruffa, M. J., et al.

Methanolic extracts from *Achyrocline satureioides* (Dc.) Lam, *Aristolochia macroura* Gomez, *Lithraea molleoides* (Vell.) Engl., *Schinus molle* L., unlike those from *Celtis spinosa* Spreng, *Chenopodium ambrosioides* L., *Petiveria alliacea* L., and *Plantago major* L. showed cytotoxic activity against a human hepatocellular carcinoma cell line, Hep G2. ***Schinus molle* L.** was the most active (IC<sub>50</sub>=50+/-7 microg/ml). These results call for further studies of these extracts.

**J Nat Prod 1996 Oct;59(10):977-9**

**Two fungal lanostane derivatives as phospholipase A2 inhibitors.**

Cuella, M. J., et al.

The hydroalcoholic extract of *Poria cocos* and two lanostane derivatives isolated from it, pachymic acid (1) and dehydrotumulosic acid (2), were active as inhibitors of phospholipase A2 from snake venom when a polarographic method was used. Dehydrotumulosic acid exhibited an IC<sub>50</sub> of 0.845 mM. These two compounds are structurally related to certain triterpenoids from *Ganoderma* and *Schinus* that have previously been described as competitive inhibitors of phospholipase A2. These comprise a new group of natural potential antiinflammatory agents due to their interaction with that enzyme.

**J. Ethnopharmacol 1996 Jul 5;52(3):171-4**

**Screening of some Cuban medicinal plants for antimicrobial activity.**

Martinez, M. J., et al.

The antimicrobial activities of 23 extracts of 12 Cuban plant species reported in traditional medicine were tested. The agar diffusion method was used to assess the activity against four bacteria and one yeast: *Staphylococcus aureus*, *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas aeruginosa* and *Candida albicans*. The results, evaluated as the diameter of the inhibition zone of microbial growth, showed that nine extracts were active against Gram-positive bacteria but only two of these proved to be also active against Gram-negative bacteria. None of the extracts inhibited the growth of the yeast. The most susceptible bacterium was *Staphylococcus aureus* and the best antibacterial activity was shown by ***Schinus terebinthifolius***.

**Rev Inst Antibiot (Recife) 1974 Dec;14(1-2):105-6**

**Antiinflammatory and wound healing action of *Schinus aroeira* Vell in patients with cervicitis and cervico-vaginitis**

Carneiro Wanick, M., et al.

In this paper we present the healing of 100 patients with chronic cervicitis and cervico-vaginitis by the antiinflammatory effect of hydroalcoholic extract of *Schinus aroeira* Vell.

**J Ethnopharmacol 1996 Jul 5;52(3):123-7**

**Screening of medicinal plants for induction of somatic segregation activity in *Aspergillus nidulans*.**

Ramos Ruiz, A., et al.

Knowledge about mutagenic properties of plants commonly used in traditional medicine is limited. A screening for genotoxic activity was carried out in aqueous or alcoholic extracts prepared from 13 medicinal plants widely used as folk medicine in Cuba: *Lepidium virginicum* L. (Brassicaceae); *Plantago major* L. and *Plantago lanceolata* L. (Plantaginaceae); *Ortosiphon aristatus* Blume, *Mentha x piperita* L., *Melissa officinalis* L. and *Plectranthus amboinicus* (Lour.) Spreng. (Lamiaceae); *Cymbopogon citratus* (DC.) Stapf (Poaceae); *Passiflora incarnata* L. (Passifloraceae); *Zingiber officinale* Roscoe (Zingiberaceae); *Piper auritum* HBK. (Piperaceae); ***Schinus terebinthifolius*** Raddi (Anacardeaceae) and *Momordica charantia* L. (Cucurbitaceae). A plate incorporation assay with *Aspergillus nidulans* was employed, allowing detection of somatic segregation as a result of mitotic crossing-over, chromosome malsegregation or clastogenic effects. *Aspergillus nidulans* D-30, a well-marked strain carrying four recessive mutations for conidial color in heterozygosity, which permitted the direct visual detection of segregants, was used throughout this study. As a result, only in the aqueous extract of one of the plants screened (*Momordica charantia*) a statistical significant increase in the frequency of segregant sectors per colony was observed, and consequently, a genotoxic effect is postulated.

**Phytochemistry 1995 Jun;39(3):537-47**

**Specific competitive inhibitor of secreted phospholipase A2 from berries of *Schinus terebinthifolius*.**

Jain, M. K., et al.

Two structurally related triterpenoids 1 and 2 from pink peppercorn (berries of *Schinus terebinthifolius*) are identified and characterized as active site-directed specific competitive inhibitors of the three classes of secreted 14 kDa phospholipase A2. The inhibitors not only protect the active site histidine from alkylation but also inhibit the action of secreted phospholipase A2 from pig pancreas, human synovial fluid, and bee venom. Detailed X-ray crystallographic results on the structures of the inhibitors are provided. By physical methods and X-ray crystallography the triterpenoids were identified as masticadienoic acid and masticadienolic acid (schinol). Several other triterpenoids were ineffective as inhibitors of phospholipase A2; however certain ganoderic acid derivatives showed noticeable inhibition. Results show that the side chain of these acidic tetracyclic terpenoids can access the catalytic-site region of phospholipase A2, whereas the acyclic nucleus is at the interfacial recognition region. The selectivity of the assay protocol used here is demonstrated by the fact that the original screen of ethyl acetate extracts of 60 commercially available spices and herbs was carried out with phospholipase A2 from pig pancreas, and only one extract showed inhibitory action on the hydrolytic activity in the scooting mode. Under such assay conditions the enzyme remains tightly bound to the surface of the substrate vesicles. In this way, nonspecific effects of additives that promote desorption of the enzyme from the substrate vesicle surface, under conditions in which the binding of the enzyme to the vesicle is weak, are avoided. The assay protocol is useful for the kinetic characterization of the inhibitors of phospholipase A2, and it does not give false positive results with amphiphilic and hydrophobic compounds, as is the case with virtually all assay systems in use.

**Cent Afr J Med 1993 Nov;39(11):231-4**

**Antimicrobial activity of essential oil from *Schinus molle* Linn.**

Gundidza M.

The essential oil from the fresh leaves of *Schinus molle* isolated by hydrodistillation was tested for antibacterial activity using the hole plate diffusion method and for antifungal activity using the mycelium or single cell growth inhibition method. Results obtained showed that the volatile oil exhibited significant activity against the following bacterial species: *Klebsiella pneumoniae*, *Alcaligenes faecalis*, *Pseudomonas aeruginosa*, *Leuconostoc cremoris*, *Enterobacter aerogenes*, *Proteus vulgaris*, *Clostridium sporogenes*, *Acinetobacter calcoacetica*, *Escherichia coli*, *Beneckea natriegens*, *Citrobacter freundii*, *Serratia marcescens*, *Bacillus subtilis* and *Brochothrix thermosphacata*. The fungal species *Aspergillus ochraceus*, *Aspergillus parasiticus*, *Fusarium culmorum* and *Alternaria alternata* exhibited significant sensitivity to the volatile oil.



**Appl Environ Microbiol 1986 May;51(5):1085-8**

**Schinus molle: a new source of natural fungitoxicant.**

Dikshit, A., et al.

The oil of *Schinus molle* exhibited the maximum fungitoxic activity during the screening of some essential oils against some common storage and animal pathogenic fungi. It showed absolute toxicity against animal pathogens and mild activity against storage fungi. The effective concentrations of the oil varied from 200 to 900 ppm. The toxicity of the oil persisted up to 80 degrees C and 90 days of storage but declined when autoclaved. It withstood heavy inoculum density. The oil exhibited a narrow range of activity and was found to be more effective than Multifungin, an antifungal drug. The oil was characterized by its various physicochemical properties. It was found to comprise 50 constituents. It appeared that some changes in the oil constituents during storage affected its fungitoxic potency.