

# List of All Chemicals

## **P** Arctium lappa (Asteraceae)

### Common name(s)

Burdock; Great Burdock; Gobo

### How used

GRAS

\*Unless otherwise noted all references are to Duke, James A. 1992. Handbook of phytochemical constituents of GRAS herbs and other economic plants. Boca Raton, FL. CRC Press.

Chemical	Part <input type="button" value="All"/>	Low PPM	High PPM	StdDev	*Reference
(-)-ARCTIGENIN	Fruit	--	--		*
<b>Activities (7)</b>					
AntiHIV IC85=0.5 uM					
Antiintegrase					
Antilymphomic					Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Cytotoxic					Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Pesticide					
Phosphodiesterase-Inhibitor					Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Topoisomerase-Inhibitor					
(4E,6E)-4,6-TETRADECADIEN-8,10,12-TRIYN-1,3-DIYL-DIACETATE	Plant	--	--		*
(4E,6E,12E)-4,6,12-TETRADECADIEN-8,10,12-TRIYN-1,3-DIYL-DIAC	Plant	--	--		*
(4E,6Z)-4,6,TETRADECADIEN-8,10,12-TRIYN-1,3-DIYL-DIACETATE	Plant	--	--		*
(4E,6Z,12E)-4,6,12-TETRADECADIEN-8,10,12-TRIYN-1,3-DIYL-DIAC	Plant	--	--		*
1,11-TRIDECADIENE	Plant	--	--		Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
1,11-TRIDECADIENE-3,5,7,9-TETRAYNE	Plant	--	--		*
1,11-TRIDECADIENE-3,5,7,9-TETRAYNE	Root	--	15.0		*
1,2-EPOXY-TRIDEC-1-ENE-5,7,9,11-TETRAYNE	Root	--	--		Jim Duke's personal files.
1,2-EPOXY-TRIDEC-TRANS-3-ENE-5,7,9-TRIYNE	Root	--	--		Jim Duke's personal files.
1,3,1,1-TRIDECATRIENE	Plant	--	--		*
1,3,11-TRIDECATRIENE-5,7,9-TRIYNE	Plant	--	2.0		*
1-TRIDECENE-3,5,7,9,11-PENTAYNE	Root	--	11.0		*
2-ALKYL-3-METHOXYPIRAZINES	Root	--	--		Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
2-METHOXY-3-METHYLPYRAZINE	Root	--	--		*
2-METHOXY-3-PYRAZINE	Root	--	--		*
2-METHYL-BUTYRIC-ACID	Root	--	--		Jim Duke's personal files.
2-METHYL-PROPIONIC-ACID	Root	--	--		Jim Duke's personal files.
3,5,7,9-TETRAYNE	Plant	--	--		Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.



**Activities (10)**

Analgesic  
 Antiedemic IC43=40 mg/kg ipr rat  
 Antiinflammatory IC71=1,000 ppm orl  
 Antinociceptive  
 Antitumor  
 Antiulcer  
 Cytotoxic 50-400  
 Gastroprotective  
 Hepatoprotective  
 Insectifuge

ALPHA-AMYRIN-ACETATE                      Plant    --        --                      Jim Duke's personal files.

**Activities (2)**

Antiinflammatory  
 Antinociceptive

ALPHA-GUAIENE                              Root    --        --                      Jim Duke's personal files.

ALUMINUM                                      Root    54.0    231.0    -0.19    \*

**Activities (5)**

Antisilicotic                      Medicinal and Poisonous Plants of the Tropics. Leeuwenberg, A.J.M., ed. Pudoc, Wageningen. 1987.  
 Antivaginitic                      Martindale's 28th  
 Candidicide                        Martindale's 28th  
 Encephalopathic                    Martindale's 29th  
 Pesticide

APLOTAXENE                              Root    --        --                      Jim Duke's personal files.

APLOTAXENE                              Plant    --        --                      \*

ARCTIC-ACID                                Plant    --        --                      \*

ARCTIC-ACID-B                              Root    --        --                      Jim Duke's personal files.

ARCTIC-ACID-B-METHYL-ESTER        Root    --        --                      Jim Duke's personal files.

ARCTIC-ACID-C                              Root    --        0.1                    Jim Duke's personal files.

ARCTIGENIN                                 Plant    --        --                      \*

**Activities (22)**

AntiHIV IC85=0.5 uM

AntiHIV IC65=0.27 uM

AntiTNF

Antiintegrase

Antileukemic IC50=0.067-0.53 ug/ml Life Sciences 55: 1061.

Antileukemic 0.2-1.4 uM

Antilymphomic  
ED50=0.53-2 uM

Antiproliferant IC74=5 uM

Antiproliferant IC88=20  
uM

Antitopoisomerase-II

Antitumor Williamson, E. M. and Evans, F. J., *Potter's New Cyclopaedia of Botanical Drugs and Preparations*, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.Antitumor (Liver) IC50=3.5  
uM

Antiviral

Cytotoxic

Differentiator 0.5-50 uM

Differentiator IC60=10 uM

Differentiator IC79=50 uM

HIV-RT-Inhibitor IC69=0.27  
uM

Immunomodulator

Immunostimulant

Pesticide

Phosphodiesterase-Inhibitor Jeffery B. Harborne and H. Baxter, eds. 1983. *Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants*. Taylor & Frost, London. 791 pp.

ARCTIGENIN

Seed

165.5

166.6

Jim Duke's personal files.

**Activities (22)**

AntiHIV IC85=0.5 uM

AntiHIV IC65=0.27 uM

AntiTNF

Antiintegrase

Antileukemic IC50=0.067-0.53 ug/ml Life Sciences 55: 1061.

Antileukemic 0.2-1.4 uM

Antilymphomic  
ED50=0.53-2 uM

Antiproliferant IC74=5 uM

Antiproliferant IC88=20  
uM

Antitopoisomerase-II

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Differentiator IC79=50 uM

HIV-RT-Inhibitor IC69=0.27  
uM

Immunomodulator

Immunostimulant

Pesticide

Phosphodiesterase-Inhibitor Jeffery B. Harborne and H. Baxter, eds. 1983. *Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants*. Taylor & Frost, London. 791 pp.

ARCTIGENIN

Fruit

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--

Jim Duke's personal files.

**Activities (22)**

AntiHIV IC85=0.5 uM

AntiHIV IC65=0.27 uM

AntiTNF

Antiintegrase

Antileukemic IC50=0.067-0.53 ug/ml Life Sciences 55: 1061.

Antileukemic 0.2-1.4 uM

Antilymphomic ED50=0.53-2 uM

Antiproliferant IC74=5 uM

Antiproliferant IC88=20 uM

Antitopoisomerase-II

Antitumor Williamson, E. M. and Evans, F. J., *Potter's New Cyclopaedia of Botanical Drugs and Preparations*, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.

Antitumor (Liver) IC50=3.5 uM

Antiviral

Cytotoxic

Differentiator 0.5-50 uM

Differentiator IC60=10 uM

Differentiator IC79=50 uM

HIV-RT-Inhibitor IC69=0.27 uM

Immunomodulator

Immunostimulant

Pesticide

Phosphodiesterase-Inhibitor Jeffery B. Harborne and H. Baxter, eds. 1983. *Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants*. Taylor & Frost, London. 791 pp.

ARCTIGENIN-4-BETA-D-GLUCOPYRANOSIDE	Plant	--	--	J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
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ARCTIGENIN-4-O-GLUCOSIDE	Fruit	--	--	Jim Duke's personal files.
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ARCTIGNAN-A	Fruit	--	125.0	Jim Duke's personal files.
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ARCTIGNAN-B	Fruit	--	150.0	Jim Duke's personal files.
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ARCTIGNAN-C	Fruit	--	140.0	Jim Duke's personal files.
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ARCTIGNAN-D	Fruit	--	250.0	Jim Duke's personal files.
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ARCTIGNAN-E	Fruit	--	270.0	Jim Duke's personal files.
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ARCTIIN	Fruit	--	--	Jim Duke's personal files.
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**Activities (4)**

Anticancer IC50=8.9 uM

Antitumor (Liver) IC50=4.9 uM

Diuretic

Narcotic

ARCTIIN	Seed	11.7	30000.0	Jim Duke's personal files.
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**Activities (4)**

Anticancer IC50=8.9 uM

Antitumor (Liver) IC50=4.9 uM

Diuretic

Narcotic

ARCTIIN	Plant	--	--	*
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**Activities (4)**

Anticancer IC50=8.9 uM

Antitumor (Liver) IC50=4.9 uM

Diuretic

Narcotic

ARCTINAL	Root	--	0.2	*
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ARCTINAL	Plant	--	--	*
ARCTINOL	Root	--	--	Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
ARCTINOL	Plant	--	--	*
ARCTINOL-A	Root	--	0.1	Jim Duke's personal files.
ARCTINOL-B	Root	--	0.3	Jim Duke's personal files.
ARCTINONE	Plant	--	--	*
ARCTINONE	Root	--	--	Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
ARCTINONE-A	Root	--	3.0	Jim Duke's personal files.
ARCTINONE-A-ACETATE	Root	--	--	Jim Duke's personal files.
ARCTINONE-ACETATE	Plant	--	--	*
ARCTINONE-B	Root	--	--	Jim Duke's personal files.
ARCTIOL	Leaf	--	--	*
ARCTIOPICRIN	Leaf	--	--	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

#### Activities (4)

Antibiotic  
Bitter  
Gram(+)/jicide  
Pesticide

ARCTIUM-ACIDIC-XYLAN	Plant	--	--	Jim Duke's personal files.	
ARCTIUM-LAPPA-ANTIMUTAGEN	Root	--	90.0	Jim Duke's personal files.	
ARCTIUM-LAPPA-SESQUILIGNAN-AL-D	Fruit	--	--	Jim Duke's personal files.	
ARCTIUM-LAPPA-SESQUILIGNAN-AL-F	Fruit	--	--	Jim Duke's personal files.	
ARCTIUM-XYLOGLUCAN-HC-II-B	Plant	--	--	Jim Duke's personal files.	
ARGININE	Root	1050.0	5250.0	-0.28	USDA's Ag Handbook 8 and sequelae)

#### Activities (14)

Antidiabetic? Wichtl, M. 1984. Teedrogen. Ein Handbuch für Apotheker und Ärzte. Wissenschaftliche Verlagsgesellschaft. mbH Stuttgart. 393 pp.

Antiencephalopathic Martindale's 29th

Antihepatic Martindale's 29th

Antihypertensive

Antiimpotence

Antiinfertility 4 g/day Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.

Antioxidant?

Aphrodisiac 3 g/day

Diuretic

Hypoammonemic Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

NO-Genic

Pituitary-Stimulant

Spermigenic 4 g/day Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.

Vasodilator

ASCORBIC-ACID	Root	20.0	85.0	-0.6	*
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#### Activities (112)

Acidulant FEMA 6,000 Aloe Research Council - Duke writeup of non-peer reviewed book by Coats and draft by Henry

Aldose-Reductase-Inhibitor Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reverse insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95

Analgesic 5-10 g/day

Angiotensin-Receptor-Blocker

AntiAGE 2,000 mg/day Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reverse insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95

AntiCFS 500-1,000 mg	
AntiCTS 1,000 mg 3x/day	
AntiCrohn's 50-100 mg/day/orl/man	Martindale's 29th
AntiLyme 500-2,000 mg	
AntiRaynaud's 500 mg 1-2x/day	
Antiaaggregant	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antianging 400 mg/day	
Antiallergic	
Antialzheimeran 2,000-6,000 mg/day	
Antiarthritic 0.2-1 g/day	
Antiasthmatic 1,000 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiatherosclerotic	
Antibacterial	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Anticataract 350 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anticataract 400 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Anticataract 1 g 3x/day	
Anticervicaldysplasic 1,000-2,000 mg/day	
Anticlimacteric 500-5,000 mg/day	
Anticold 1-2 g/man/day	
Antidecubitic 500 mg/man/2x/day	Martindale's 28th
Antidementia	
Antidepressant 2,000 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antidiabetic	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antidote (Aluminum)	Economic & Medicinal Plant Research, 6: 189.
Antidote (Cadmium)	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidote (Lead)	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidote (Paraquat)	Martindale's 28th
Antieczemic 3.5-5 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiedemic 1 g/man/day	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiencephalitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antijendometriotic 2,000 mg/day	
Antifatigue 500-1,000 mg	
Antifibrotic 1,000-2,000 mg	
Antigallstone 1,000-3,000 mg/day	
Antigastritic	
Antigingivitic	
Antiglaucomic 2 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antihangover 1,000 mg	
Antihemorrhagic 1 g/man/day	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antihepatitic 2-6 g/man/day	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antihepatotoxic	Economic & Medicinal Plant Research, 6: 189.
Antiherpetic 1-5 g/day	
Antihistaminic 2 g/day orl man	
Antihypertensive	
Antiinfertility 1 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiinflammatory	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antileptic 1.5 g/man/day	Martindale's 28th
Antilithic 1,000-3,000 mg/day	
Antimaculitic	
Antimeasles	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antimenopausal 500-5,000 mg/day	
Antimigraine	Martindale's 29th
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.
Antineuramidase	
Antinitrosic 1 g/man/day	Martindale's 28th
Antioesity 1 g 3x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiorchitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiosteoarthritic 1 g 2x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiosteoporotic 500 mg/day	
Antioxidant 100 ppm	

Antiparkinsonian 1 g 2-3x/day	
Antiparotitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiperiodontitic 1 g 2x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antipneumonic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antipodriac	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antipoliomyelitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antipyretic	Economic & Medicinal Plant Research, 6: 189.
Antiradicular	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antiretinotic	
Antirheumatic	
Antirhinitic 1,000 mg 3x/day	
Antiscorbutic 10 mg/man/day	Martindale's 28th
Antiseptic MIC=3.3-217 mg/ml	Martindale's 28th
Antiseptic 4-8 g/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antishingles	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antispasmodic 500-5,000 mg/day	
Antistress 500-1,000 mg	
Antisyndrome-X 1-4 g/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antitumor (Gastric)	
Antitumor (Lung)	
Antiulcer	
Antiviral 1-5 g/day	
Apoptotic 1-10 mM	
Asthma-preventive 1,000 mg/day/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Beta-Adrenergic Receptor Blocker	
Beta-Glucuronidase-Inhibitor 1.5 g/day/man	
Calcium-Antagonist	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Cardioprotective	
Cold-preventive 1-2 g/day	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Collagenic	
Detoxicant	
Diuretic 700 mg/man/orl	
Fistula-Preventive	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Hypocholesterolemic 300-1,000 mg/day	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Hypoglycemic	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Hypotensive 1,000 mg/man/day	
Immunomodulator	
Immunostimulant	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Interferonogenic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Lithogenic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Mucolytic 1 g/woman/day	Martindale's 28th
Pesticide	
Uricosuric 4 g/man/day	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Urinary-Acidulant	Martindale's 29th
Vasodilator	
Vulnerary	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).

ASH	Root	7990.0	34000.0	-0.96	*
ASH	Leaf	8200.0	35600.0	-1.47	Wealth of India.
ASPARTIC-ACID	Root	1770.0	8850.0	-0.14	USDA's Ag Handbook 8 and sequelae)

#### Activities (3)

Antimorphinic	Martindale's 28th
Neuroexcitant	Martindale's 28th
Roborant	Merck 11th Edition



**Activities (51)**

Allergenic	
Analgesic	
Anesthetic	Martindale's 29th
Anhydrotic	
Antianoxic	Martindale's 29th
Antiarrhythmic 400-1,000 ug	
Antiasthmatic	Martindale's 28th
Antibradycardic 300-600 ug/ims/man/day	Martindale's 28th
Anticholinergic 0.55 mg/kg orl mus	Borchard, R. E., Barnes, C. D., and Eltherton, L. G. 1991. Drug Dosage in Laboratory Animals: A Handbook. (3rd Ed.) The Telford Press, Inc., P. O. Box 287, Caldwell NJ 07006.
Anticholinergic 10 mg/kg orl rat	Borchard, R. E., Barnes, C. D., and Eltherton, L. G. 1991. Drug Dosage in Laboratory Animals: A Handbook. (3rd Ed.) The Telford Press, Inc., P. O. Box 287, Caldwell NJ 07006.
Antidote (Anticholinesterase) 2 mg/man/ims	Martindale's 29th
Antidote (Black Widow)	Martindale's 29th
Antidote (Lobelia) 2 mg scu	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antidote (Muscarine)	
Antidote (Mushroom)	Martindale's 30th
Antidote (Organophosphorus) 2-10 mg/ims/man	Martindale's 29th
Antidote (Poison Gas)	
Antidote (Tetrodotoxin)	
Antiemetic	Martindale's 29th
Antiemphysemic	Martindale's 29th
Antienuretic	Martindale's 28th
Antiherpetic	
Antiiritic	Martindale's 30th
Antimuscarinic	Martindale's 29th
Antiparkinsonian	Martindale's 29th
Antiperistaltic	
Antiperspirant	Martindale's 29th
Antipertussic	Martindale's 29th
Antipolio	
Antisialagogue	Martindale's 28th
Antispasmodic	Merck 11th Edition
Antiulcer 500 ug/3 x/day/man	Martindale's 28th
Antiuveitic	Martindale's 30th
Antivertigo	
Antiviral	
Bronchodilator	
CNS-Depressant	Martindale's 28th
CNS-Stimulant	
Choleretic	
Hyperpyrexia	Merck 11th Edition
Insecticide	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Mydriatic	Merck 11th Edition
Myorelaxant	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Neurotoxic	R.J. Hixtable (Huxtable, R.J. (as T. Max). 1992. This and That:The Essential Pharmacology of Herbs and Spices. Tips 13:15-20 Huxtable, R.J. 1992b. The Myth of Benificent Nature. The Risk of Herbal Preparations. Anns. Intern. Med. 117(2):165-6; Huxtable, R.
Paralytic	
Pesticide	
Psychotomimetic	R.J. Hixtable (Huxtable, R.J. (as T. Max). 1992. This and That:The Essential Pharmacology of Herbs and Spices. Tips 13:15-20 Huxtable, R.J. 1992b. The Myth of Benificent Nature. The Risk of Herbal Preparations. Anns. Intern. Med. 117(2):165-6; Huxtable, R.
Tachycardic 2 mg/orl/man	Martindale's 28th
Transdermal	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Tumorigenic	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Vasodilator	Merck 11th Edition

BENEDICTINOLIDE

Leaf

--

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\*

BENZALDEHYDE

Root

--

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\*



**Activities (4)**

Anticonvulsant  
Antiinflammatory  
Antinociceptive  
Antioxidant

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BETA-CAROTENE	Root	11.0	45.0	-0.15	*
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**Activities (53)**

Allergenic	
Androgenic?	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
AntiPMS	
Antiacne	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiaging	
Antiarthritic	
Antiasthmatic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Anticancer	Joseph, J., Nadeau, D. and Underwood, A. 2001. The Color Code. Hyperion, NY.
Anticarcinomic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Anticervicaldysplasic	
Anticoronary 50 mg/man/2 days	
Antihyperkeratotic	
Antiichthyotic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antileukoplakic	
Antilipoperoxidant IC71=50 ug/ml	
Antilupus 150 mg/man/day/2 mos	Martindale's 28th
Antimaculitic	
Antimastitic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.
Antioxidant	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiozenic	
Antipapillomic	
Antiphotophobic 30-300 mg/man/day	Martindale's 29th
Antipityriasic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiporphyrhic 30-300 mg/man/day	Martindale's 28th
Antiproliferant	Joseph, J., Nadeau, D. and Underwood, A. 2001. The Color Code. Hyperion, NY.
Antipsoriac	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiradicular	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antirheumatic	
Antistress	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antitumor	Simon, P.W. Carrots and Other Horticultural Crops as a Source of Provitamin A Carotenes. HortScience, 25(12): 1495, 1990.
Antitumor (Breast) IC45=60 ug/ml	
Antitumor (CNS) IC43=45 ug/ml	
Antitumor (Colon) IC43=45 ug/ml	
Antitumor (Lung) IC30=60 ug/ml	
Antitumor (Prostate)	
Antitumor (Stomach) IC26=45 ug/ml	
Antiulcer 12 mg 3x/day/man/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiulcer 15,000-25,000 IU/day	
Antixerophthalmic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
COX-1-Inhibitor IC78=50 ug/ml	
COX-2-Inhibitor IC82=50 ug/ml	
Cancer-Preventive 22 ppm	Jim Duke's personal files.
Chemopreventive	
Colorant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Gastroprotective	
Immunostimulant 180 mg/man/day/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Interferon-Synergist	
Mucogenic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Phagocytotic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Prooxidant 20 ug/g	
Thymoprotective	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Ubiquiot	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

BETA-ELEMENE

Root

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Jim Duke's personal files.

**Activities (5)**

Anticancer (Cervix)	Medicinal and Poisonous Plants of the Tropics. Leeuwenberg, A.J.M., ed. Pudoc, Wageningen. 1987.
Antigliomic	
Antiproliferant	
Antitumor (Cervix)	Medicinal and Poisonous Plants of the Tropics. Leeuwenberg, A.J.M., ed. Pudoc, Wageningen. 1987.
Apoptotic	

BETA-EUDESOL

Leaf

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**Activities (13)**

AntiEBV	
Antianoxic ED60=300 ori mus	Yamahara, J., Matsuda, H., Naitoh, Y., Fujimura, H., and Tamai, Y. 1990. Antianoxic Action and Active Constituents of <i>Atractylodes lancea</i> Rhizoma. Chem. Pharm. Bull. 38(7): 2033-2034, 1990.
Antimutagenic ID50=0.09 uM/ml	
Antipeptic	Chem & Pharm. Bull., 34: 3854, 1986.
Antisalmonella >0.18 uM/ml	
Antitumor-Promoter?	
Antiulcer	
CNS-Inhibitor	
Calcium-Antagonist 40 uM mus	
Hepatoprotective	
Neurogenic	
Pesticide	
Sedative	

BETA-SITOSTEROL

Plant

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Jim Duke's personal files.

**Activities (47)**

Androgenic	
Angiogenic	
Anorexic	Martindale's 28th
Antiadenomic	Merck 11th Edition
Antiandrogenic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. <i>Journal of Ethnopharmacology</i> , 28: 221-234, 1990.
Antibacterial	Recently became Internat. J. Crude Drug Res. 28(1,2,3,4):1990, page 155.
Anticancer (Breast)	Madhavi, D. L., Bomser, J., Smith, M., Singletary, K. 1998. Isolation of Bioactive Constituents from <i>Vaccinium myrtillus</i> (Bilberry) Fruits and Cell Cultures. <i>Plant Sci.</i> , 131(1): 95-103.
Anticancer (Cervix)	
Anticancer (Lung)	
Antiedemic IC54=320 mg/kg orl	
Antiestrogenic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. <i>Journal of Ethnopharmacology</i> , 28: 221-234, 1990.
Antifeedant	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Antifertility	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. <i>Journal of Ethnopharmacology</i> , 28: 221-234, 1990.
Antigonadotrophic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. <i>Journal of Ethnopharmacology</i> , 28: 221-234, 1990.
Antihyperlipoproteinaemic	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.
Antiinflammatory	
Antileukemic	
Antilymphomic	
Antimutagenic 250 ug/ml	
Antiophidic 2.3 mg mus	Economic & Medicinal Plant Research, 5: 363.
Antioxidant IC44=10 uM	
Antiprogestational	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. <i>Journal of Ethnopharmacology</i> , 28: 221-234, 1990.
Antiprostaglandin 30 mg/day/12 wks	
Antiprostataadenomic	Merck 11th Edition
Antiprostatic 10-20 mg 3 x/day/orl man	
Antipyretic	Neuwinger, H. D. 1996. <i>African Ethnobotany - Poisons and Drugs.</i> Chapman & Hall, New York. 941 pp.
Antitumor (Breast)	Madhavi, D. L., Bomser, J., Smith, M., Singletary, K. 1998. Isolation of Bioactive Constituents from <i>Vaccinium myrtillus</i> (Bilberry) Fruits and Cell Cultures. <i>Plant Sci.</i> , 131(1): 95-103.
Antitumor (Cervix)	
Antitumor (Lung)	
Antiviral	Abid Ali Khan, M.M., Jain, D.C., Bhakuni, R.S., Zaim, M., and Thakur, R.S. 1991. Occurrence of some antiviral sterols in <i>Artemisia annua</i> . <i>Plant Science</i> , 75: 161-165, 1991.
Apoptotic	
Artemicide LC50=110 ppm	Jung, J.H., Pummangura, S., Chaichantipyuth, c., Patarapanich, C., and McLaughlin, J.L. 1989. Bioactive Constituents of <i>Melodorum fruticosum</i> . <i>Phytochemistry</i> . 29(5): 1667-1670. 1990.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Candidicide	Recently became Internat. J. Crude Drug Res. 28(1,2,3,4):1990, page 155.
Caspase-8-Inducer	
Estrogenic	
Febrifuge	Neuwinger, H. D. 1996. <i>African Ethnobotany - Poisons and Drugs.</i> Chapman & Hall, New York. 941 pp.
Gonadotrophic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. <i>Journal of Ethnopharmacology</i> , 28: 221-234, 1990.
Hepatoprotective	
Hypocholesterolemic 2-6 g/man/day/orl	Martindale's 30th
Hypocholesterolemic 9-3,330 mg/man/day/orl	Martindale's 28th
Hypoglycemic	Ivorra, M.D., Paya, M., and Villar, A. 1989. A Review of Natural Products and Plants as Potential Antidiabetic Drugs. <i>Journal of Ethnopharmacology</i> , 27: 243-275, 1989.
Hypolipidemic 2-6 g/day	
Pesticide	
Spermicide	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. <i>Journal of Ethnopharmacology</i> , 28: 221-234, 1990.
Ubiquit	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.
Ulcerogenic 500 mg/kg ipr rat	

BIS-5',5'-ARCTIGENIN      Seed    --      2.3      Jim Duke's personal files.

BUTYRIC-ACID      Plant    --      --      \*



Antispasmodic EC50=3.4-15 uM	Phytotherapy Research, 4: 73.
Antistaphylococcic	
Antistomatitic	Economic & Medicinal Plant Research, 5: 207.
Antisunburn	
Antithiamin	Phenolic Compounds in Food and Their Effects on Health, 69.
Antithyroid	Jim Duke's personal files.
Antitumor 200 ppm diet orl mus	
Antitumor (Skin)	
Antitumor-Promoter IC42=10 uM	Cancer Research, 48: 5941.
Antiulcerogenic	
Antivaccinia	Economic & Medicinal Plant Research, 5: 207.
Antiviral IC50=62.5 ug/ml	
Anxiolytic	
CNS-Active	Wichtl, M. 1984. Teedrogen. Ein Handbuch fur Apotheker und Arzte. Wissenschaftliche Verlagsgesellschaft. mbH Stuttgart. 393 pp.
COX-2-Inhibitor IC32=100 uM	
Calcium-Antagonist IC50=1.2 uM rbt	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Carcinogenic 2% (diet)	
Chemopreventive	
Cholagogue	Wichtl, M. 1984. Teedrogen. Ein Handbuch fur Apotheker und Arzte. Wissenschaftliche Verlagsgesellschaft. mbH Stuttgart. 393 pp.
Choleretic	Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
Clastogenic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Co-carcinogenic	
Collagen-Sparing	
Cytoprotective	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Cytotoxic TC50=200 ug/ml	
DNA-Active	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
DNA-Protective	
Diuretic	Wichtl, M. 1984. Teedrogen. Ein Handbuch fur Apotheker und Arzte. Wissenschaftliche Verlagsgesellschaft. mbH Stuttgart. 393 pp.
Fungicide MIC=0.4 mg/ml	
Hepatocarcinogenic 400 ppm diet orl mus (in the absence of alcohol)	
Hepatoprotective	Advance in Chinese Medicinal Materials Research. 1985. Eds. H. M. Chang, H. W. Yeung, W. -W. Tso and A. Koo. World Scientific Publishing Co., Philadelphia Pa., page 210.
Hepatotropic	
Histamine-Inhibitor	
Immunostimulant	
Insectifuge	Tunon, H., Thorsell, W., and Bohlin, L. 1993. Mosquito Repelling Activity of Compounds Occurring in Achillea millefolium L. (Asteraceae). Economic Botany 48(2): 111-120, 1994.
Leukotriene-Inhibitor	
Lipoxygenase-Inhibitor IC27=5 mM	Oszmianski, J. and Lee, C.Y. 1990. Inhibitory Effect of Phenolics on Carotene Bleaching in Vegetables. J. Agric. Food Chem. 38: 688-690.
Lipoxygenase-Inhibitor IC50=62-148 uM	
Lyase-Inhibitor IC50=94-164 uM	
Metal-Chelator	McEvily, A.J., Iyengar, R., and Gross, A.T. Inhibition of Polyphenol Oxidase by Phenolic Compounds. Phenolic Compounds in Food and Their Effects on Health, Ch.25.
Ornithine-Decarboxylase-Inhibitor	Hagerman, A.E. Tannin-Protein Interactions. Phenolic Compounds in Food and Their Effects on Health, Ch.19.
Pesticide	
Prooxidant	
Prostaglandigenic	
Sedative 500 mg	
Sunscreen IC50=2.5 mg/l	Lazarova*, G., Kostova, I., Neychev, H. 1992. Photodynamic damage prevention by some hydroxycoumarins. Fitoterapia 64(2): 134-136, 1993.
Sunscreen IC91=5 mg/l	Lazarova*, G., Kostova, I., Neychev, H. 1992. Photodynamic damage prevention by some hydroxycoumarins. Fitoterapia 64(2): 134-136, 1993.
Sunscreen IC98=25 mg/l	Lazarova*, G., Kostova, I., Neychev, H. 1992. Photodynamic damage prevention by some hydroxycoumarins. Fitoterapia 64(2): 134-136, 1993.
Tumorigenic	Jim Duke's personal files.
Vulnerary	
Xanthine-Oxidase-Inhibitor IC50=39.21 uM	Mills, Simon and Bone, Kerry. 2000. Phytotherapy. Churchill Livinston, Edinburgh.

## CALCIUM

Root 1723.0 7330.0 -0.01 \*



**Activities (28)**

AntiPMS 1 g/day	
Antiallergic 500 mg/day	
Antianxiety	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiarrhythmic 500-1,500 mg	
Antiarthritic 1,000 mg/day	
Antiatherosclerotic 500 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anticlimacteric 1,000-1,500 mg/day	
Antidepressant	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidote (Aluminum)	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidote (Lead)	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antihyperkinetic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antihypertensive	
Antiinsomniac	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antimenopausal 1,000-1,500 mg/day	
Antiobesity	
Antiosteoporotic 500-2,000 mg/day	
Antiperiodontitic 750 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antirheumatic 1,000 mg/day	
Antistress 500-1,500 mg/day	
Antitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Anxiolytic 500-1,500 mg/day	
Calcium-Channel-Blocker	
Diuretic	
Hypocholesterolemic 500 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Hypotensive 1 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Laxative 1,000-1,200 mg	
Tranquilizer 500-1,500 mg/day	
Vasodilator	

CARBOHYDRATES                      Root    200925.0   855000.0   0.32       \*

CARYOPHYLLENE                      Root    --            --                                      Jim Duke's personal files.

**Activities (31)**

Aldose-Reductase-Inhibitor	
Allergenic	
Analgesic	Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.
Antiacne	
Antiasthmatic	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Antibacterial	
Anticariogenic MIC=>1,600 ug/ml	Muroi, H. and Kubo, I. 1993. Combination Effects of Antibacterial Compounds in Green Tea Flavor against Streptococcus mutans. J. Agric. Food Chem. 41: 1102-1105.
Antidermatitic	
Antiedemic	Shimizu,*M., et al. 1990. Anti-inflammatory Constituents of Topically Applied Crude Drugs. IV.1) Constituents and Anti-inflammatory Effect of Paraguayan Crude Drug 'Alhucema' (Lavandula latifolia Vill.)2). Chem. Pharm. Bull. 38(8): 2283-2284, 1990.
Antifeedant 500 ppm	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Antiinflammatory IC50=100 uM	Shimizu,*M., et al. 1990. Anti-inflammatory Constituents of Topically Applied Crude Drugs. IV.1) Constituents and Anti-inflammatory Effect of Paraguayan Crude Drug 'Alhucema' (Lavandula latifolia Vill.)2). Chem. Pharm. Bull. 38(8): 2283-2284, 1990.
Antileishmanic	
Antionychotic	Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.
Antiproliferant	
Antispasmodic	
Antistaphylococcic	
Antistreptococcic	
Antitumor	Zheng, G-Q., Kenney, P.M., and Lam, L.K.T. Sesquiterpenes From Clove (Eugenia caryophyllata) As Potential Anticarcinogenic Agents. Journal of Natural Products 55(7): 999-1003, 1992.
Antiulcer	Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.
Candidicide	
FLavor FEMA 20-200	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Fungicide	
Gastroprotective	Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.
Insectifuge	
Irritant	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
Larvicide	
Mosquitocide	
Perfumery	Merck 11th Edition
Pesticide	
Sedative	
Termitifuge	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.

**CHLOROGENIC-ACID**

Root -- -- \*

**Activities (77)**

Aldose-Reductase-Inhibitor IC50=1.8 uM rat (strong activity)	Yoshikawa, M., et al. 1999. Medicinal Flowers. I. Aldose Reductase Inhibitors and Three New Eudesmane-Type Sesquiterpenes, Kikkanols A, B, and C, From the Flowers of Chrysanthemum indicum L. Chem Pharm Bull, 47(3): 340-345.
Allelochemic	
Allergenic	
Analgesic	
AntiEBV	Economic & Medicinal Plant Research, 6: 189.
AntiHIV	Economic & Medicinal Plant Research, 6: 189.
AntiLegionella	
Antiatherosclerotic	
Antibacterial	
Anticancer (Colon)	
Anticancer (Forestomach)	
Anticancer (Liver)	
Anticancer (Skin)	
Anticarcinogenic	
Antidiabetic	
Antifeedant	
Antigenotoxic	
Antigonadotropic	Jim Duke's personal files.
Antihemolytic 10 uM	Ohnishi, M., Morishita, H., Iwashashi, H., Toda, S., Shirataki, Y., Kimura, M., and Kido, R. 1993. Inhibitory Effects of Chlorogenic Acids on Linoleic Acid Peroxidation and Haemolysis. Phytochemistry. 36(3): 579-583. 1994.
Antihepatotoxic	
Antiherpetic	Economic & Medicinal Plant Research, 5: 194.
Antihistaminic	
Antihypercholesterolemic	Economic & Medicinal Plant Research, 6: 189.
Antihyperthyroid	
Antiinflammatory	Hagerman, A.E. Tannin-Protein Interactions. Phenolic Compounds in Food and Their Effects on Health, Ch.19.

Antileukotriene	
Antimelanogenic	
Antimutagenic	
Antinitrosaminic	
Antioxidant IC53=200 ppm	Huang, M.-T., and Ferraro, T. Phenolic Compounds in Food and Cancer Prevention. Phenolic Compounds in Food and Their Effects on Health, Ch.2 p.21.
Antioxidant IC80=12 uM	
Antioxidant IC50=54.2 uM	
Antiperoxidant IC50=36 uM	Planta Medica, 57: A54, 1991.
Antipolio	Jim Duke's personal files.
Antiradicular 10 uM	Ohnishi, M., Morishita, H., Iwashita, H., Toda, S., Shirataki, Y., Kimura, M., and Kido, R. 1993. Inhibitory Effects of Chlorogenic Acids on Linoleic Acid Peroxidation and Haemolysis. Phytochemistry. 36(3): 579-583. 1994.
Antiradicular 9 x quercetin	
Antiseptic	
Antisunburn	
Antithyroid	Jim Duke's personal files.
Antitumor	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antitumor (Colon)	
Antitumor (Forestomach)	
Antitumor (Liver)	
Antitumor (Skin)	
Antitumor-Promoter IC25=10 uM	
Antiulcer	Economic & Medicinal Plant Research, 6: 189.
Antiviral	Vlietinck, A.J. and Dommissse, R.A. eds. 1985. Advances in Medicinal Plant Research. Wiss. Verlag. Stuttgart.
Autotoxic	
CNS-Active	Wichtl, M. 1984. Teedrogen. Ein Handbuch fur Apotheker und Arzte. Wissenschaftliche Verlagsgesellschaft. mbH Stuttgart. 393 pp.
CNS-Stimulant 1/6 Caffeine	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Cardioprotective	
Chemopreventive	
Cholagogue	Wichtl, M. 1984. Teedrogen. Ein Handbuch fur Apotheker und Arzte. Wissenschaftliche Verlagsgesellschaft. mbH Stuttgart. 393 pp.
Choleretic	Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.
Clastogenic	Friedman, M. and Dao, L. 1990. Effect of Autoclaving and Conventional and Microwave Baking on the Ergot Alkaloid and Chlorogenic Acid Contents of Morning Glory (Ipomoea tricolor Cav. cv.) Heavenly Blue Seeds. J. Agric. Food Chem. 38: 805-808.
Collagen-Sparing	
Diuretic	
Fungicide	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.
Hepatoprotective	Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.
Histamine-Inhibitor	
Hypoglycemic	
Immunostimulant	
Insectifuge	Tunon, H., Thorsell, W., and Bohlin, L. 1993. Mosquito Repelling Activity of Compounds Occurring in Achillea millefolium L. (Asteraceae). Economic Botany 48(2): 111-120, 1994.
Interferonogenic	Economic & Medicinal Plant Research, 1: 124.
Juvabional	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Larvostat	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Leukotriene-Inhibitor	
Lipoxygenase-Inhibitor IC23=5 mM	Oszmianski, J. and Lee, C.Y. 1990. Inhibitory Effect of Phenolics on Carotene Bleaching in Vegetables. J. Agric. Food Chem. 38: 688-690.
Metal-Chelator	McEvily, A.J., Iyengar, R., and Gross, A.T. Inhibition of Polyphenol Oxidase by Phenolic Compounds. Phenolic Compounds in Food and Their Effects on Health, Ch.25.
NO-Genic	
Ornithine-Decarboxylase-Inhibitor	Hagerman, A.E. Tannin-Protein Interactions. Phenolic Compounds in Food and Their Effects on Health, Ch.19.
Oviposition-Stimulant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Pesticide	
Sunscreen	
Sweetener	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Vulnerary	

CHROMIUM

Root 0.5 2.0 -0.16 \*



<b>Activities (2)</b>					
Antibacterial 750 ug/ml	Recio, M. C., Rios, J. L., and Villar, A., A review of some antimicrobial compounds isolated from medicinal plants reported in the literature 1978-1988, <i>Phytotherapy Research</i> , 3(4), 1989, 117-125.				
Pesticide					
CYPERENE	Root	--	--	Jim Duke's personal files.	
<b>Activities (2)</b>					
Antimalarial IC50=>50 ug/ml	Rukunga, G. and Simons, A. J. 2006. The Potential of Plants as a Source of Antimalarial Agents - A Review. Africa Herbal Antimalaria Meeting. PlantaPhile Publications, Berlin. 72 pp.				
Antiplasmodial IC50=>50 ug/ml	Rukunga, G. and Simons, A. J. 2006. The Potential of Plants as a Source of Antimalarial Agents - A Review. Africa Herbal Antimalaria Meeting. PlantaPhile Publications, Berlin. 72 pp.				
CYSTINE	Root	60.0	300.0	-1.24	USDA's Ag Handbook 8 and sequelae)
<b>Activities (2)</b>					
Adjuvant	Merck 11th Edition				
Antihomocystinuric	Martindale's 29th				
DAUCOSTEROL	Seed	--	170.6	1.4	Jim Duke's personal files.
<b>Activities (5)</b>					
Aldose-Reductase-Inhibitor 0.1 mM/l rat (weak activity, 31.9% inhibition)	Fujita, T., Ohira, K., Miyatake, K., Nakano, Y., Nakayama, M. 1995. Inhibitory Effect of Perillosides A and C, Related Monoterpene Glucosides on Aldose Reductase and Their Structure-Activity Relationships. <i>Chem Pharm Bull</i> , 43(6): 920-926.				
Antileukemic					
Antispasmodic 20 mg/kg	=ICMR(Indian Council of Medical Research).1976.Medicinal Plants of India.Vol.1.Indian Council of Med. Res.Cambridge Printing Works, New Delhi.487 pp;ICMR.1987.Medicinal Plants of India.Vol.2.Indian Council of Med. Res.Cambr. Printing Works,New Delhi.600pp				
Antitumor					
Hypoglycemic	Economic & Medicinal Plant Research, 6: 158.				
DECAN-1-AL	Root	--	--	Jim Duke's personal files.	
<b>Activities (1)</b>					
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.				
DEHYDROCOSTUS-LACTONE	Plant	--	--	*	
<b>Activities (4)</b>					
Antibacterial					
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.				
Pesticide					
Phytohormonal	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.				
DEHYDROCOSTUS-LACTONE	Root	--	--	Jim Duke's personal files.	
<b>Activities (4)</b>					
Antibacterial					
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.				
Pesticide					
Phytohormonal	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.				
DEHYDRODIHYDROCOSTUS-LACTONE	Plant	--	--	*	
DEHYDRODIHYDROCOSTUS-LACTONE	Root	--	--	Jim Duke's personal files.	
DEHYDROFUJINONE	Plant	--	--	*	
DEHYDROFUJINONE	Leaf	--	--	*	
DESMUTAGENIC FACTOR	Root	--	146.0	Jim Duke's personal files.	
<b>Activities (1)</b>					
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.				
DIHYDROAPLOTAXENE	Root	--	--	Jim Duke's personal files.	
EO	Root	600.0	7500.0	-0.3	Wealth of India.
EO	Leaf	--	285.0	-0.99	Wealth of India.
EREMOPHILENE	Leaf	--	--	*	

FAT	Leaf	1300.0	8335.0	-0.96	Wealth of India.
FAT	Root	1645.0	7000.0	-0.53	*
FAT	Fruit	150000.0	300000.0	1.65	*
FIBER	Root	19400.0	97000.0	0.2	*

**Activities (15)**

- Angiotensin-Receptor-Blocker
- Antidiabetic
- Antihypertensive
- Antiobesity
- Antitumor Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
- Antiulcer Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
- Beta-Blocker
- Cancer-Preventive Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
- Cardioprotective
- Diuretic
- Hypocholesterolemic
- Hypotensive 10 g/man/day/orl Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
- Hypouricemic
- Laxative
- Vasodilator

FIBER	Leaf	20000.0	94700.0	-0.83	Wealth of India.
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**Activities (15)**

- Angiotensin-Receptor-Blocker
- Antidiabetic
- Antihypertensive
- Antiobesity
- Antitumor Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
- Antiulcer Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
- Beta-Blocker
- Cancer-Preventive Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
- Cardioprotective
- Diuretic
- Hypocholesterolemic
- Hypotensive 10 g/man/day/orl Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
- Hypouricemic
- Laxative
- Vasodilator

FIBER(CRUDE)	Root	--	72000.0	-1.16	*
FIBER(DIETARY)	Root	--	700000.0	3.29	*
FRUCTOSE	Root	--	--		Jim Duke's personal files.

**Activities (8)**

- Antialcoholic Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
- Antidiabetic Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
- Antihangover
- Antiketotic Merck 11th Edition
- Antinauseant Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
- Laxative
- Neoplastic CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
- Sweetener 2 x glucose Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

FUKINANOLIDE	Leaf	--	--		*
FUKINONE	Leaf	--	--		*
FUKIONE	Leaf	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
GABA	Root	--	25.0	-0.71	Wealth of India.

**Activities (22)**

Analeptic	
Anticephalagic	
Anticerebrotic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antichoreic 1-32 g/man/day	Martindale's 29th
Anticonvulsant 4,120 mg/kg ipr mus	Borchard, R. E., Barnes, C. D., and Eltherton, L. G. 1991. Drug Dosage in Laboratory Animals: A Handbook. (3rd Ed.) The Telford Press, Inc., P. O. Box 287, Caldwell NJ 07006.
Antihypertensive 1,000-4,000 mg/man/day	
Antiinsomniac	
Antilethargic	
Antistress	
Antitinnitic	
Anxiolytic	
CNS-Inhibitor 2,500 mg/kg scu mus	Borchard, R. E., Barnes, C. D., and Eltherton, L. G. 1991. Drug Dosage in Laboratory Animals: A Handbook. (3rd Ed.) The Telford Press, Inc., P. O. Box 287, Caldwell NJ 07006.
CNS-Inhibitor 0.1 mg/kg ivn cat	Borchard, R. E., Barnes, C. D., and Eltherton, L. G. 1991. Drug Dosage in Laboratory Animals: A Handbook. (3rd Ed.) The Telford Press, Inc., P. O. Box 287, Caldwell NJ 07006.
CNS-Inhibitor 100 mg/kg ivn dog	Borchard, R. E., Barnes, C. D., and Eltherton, L. G. 1991. Drug Dosage in Laboratory Animals: A Handbook. (3rd Ed.) The Telford Press, Inc., P. O. Box 287, Caldwell NJ 07006.
Cardiovascular 208 ivn dog	Borchard, R. E., Barnes, C. D., and Eltherton, L. G. 1991. Drug Dosage in Laboratory Animals: A Handbook. (3rd Ed.) The Telford Press, Inc., P. O. Box 287, Caldwell NJ 07006.
Diuretic 1,500-4,000 mg/man/day	
Hypotensive 1,000-4,000 mg/day	
Neuroinhibitor	
Neurotoxic (to birds)	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Neurotransmitter	
Sedative	
Tranquilizer	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.

GAMMA-GUANIDINO-N-BUTYRIC-ACID	Root	--	25.0	*
GERMACRANOLIDE	Fruit	--	--	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
GLUCOSE	Root	--	--	Jim Duke's personal files.

**Activities (7)**

Acetylcholinergic	
Antiedemic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antihepatotoxic	Merck 11th Edition
Antiketotic	Merck 11th Edition
Antivaricose	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Hyperglycemic	Merck 11th Edition
Memory-Enhancer	Science News, 138: 189, 1990.

GLUTAMIC-ACID	Root	1570.0	7850.0	-0.63	USDA's Ag Handbook 8 and sequelae)
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**Activities (8)**

Antialkali? 500-1,000 mg/day/orl/man	Martindale's 29th
Antiepileptic	
Antihyperammonemic	Martindale's 29th
Antilithic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiprostatic 125-250 mg 3 x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiretardation	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Anxiolytic	Merck 11th Edition
Neurotoxic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

GLYCINE	Root	310.0	1550.0	-0.93	USDA's Ag Handbook 8 and sequelae)
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Activities (12)	
Antiacid	Martindale's 29th
Antialdosteronic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antidote (Hypoglycin-A)	Martindale's 29th
Antiencephalopathic	Martindale's 29th
Antigastric	Martindale's 29th
Antiprostatic 125-250 mg 3 x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antipruritic	Merck 11th Edition
Antisickling	Ekeke, G.I. and Shode, F.O. 1988. Phenylalanine is the Predominant Antisickling Agent in Cajanus cajan Seed Extract. Planta Medica 56(1): 41, 1990.
Antiulcer	Martindale's 29th
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Neuroinhibitor	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Uricosuric	

HEPTADEC-1-ENE	Root	--	--		Jim Duke's personal files.
HEPTADECA-1-CIS-8-CIS-15-TRIENE-11,13-DIYNE	Root	--	--		Jim Duke's personal files.
HEPTAN-1-AL	Root	--	--		Jim Duke's personal files.
HEX-2-EN-1-AL	Root	--	--		Jim Duke's personal files.
HEX-3-EN-1-AL	Root	--	--		Jim Duke's personal files.
HEX-3-EN-1-OIC-ACID	Root	--	--		Jim Duke's personal files.
HISTIDINE	Root	310.0	1550.0	-0.24	USDA's Ag Handbook 8 and sequelae)

Activities (7)	
Antiarteriosclerotic	
Antinephritic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antioxidant	
Antiulcer	
Antiuremic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Oxidant	

INULIN	Root	94000.0	500000.0	0.97	*
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Activities (19)	
Alcohol-Dehydrogenase-Inhibitor (diagnostic)=50 mg/kg/ivn/man	Martindale's 29th
Anticolitic?	
Antidiabetic	
Antidiarrheic	
Antiobesity?	
Antiosteoporotic?	
Bifidogenic	
Chemopreventive (Breast Cancer)	
Chemopreventive (Colon Cancer)	
Expectorant	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
Gastrostimulant	
Hypocholesterolemic	
Hypoglycemic	
Immunostimulant	
Laxative	
Lipolytic	
Prebiotic	
Probiotic	
Probiotigenic	

IRON	Root	35.0	147.0	-0.23	*
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Activities (6)					
Antiakathisic	Martindale's 29th				
Antianemic	Martindale's 29th				
Anticanker					
Anticheilitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Antimenorrhagic 100 mg/day/wmn/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).				
Prooxidant					

ISOCHLOROGENIC-ACID      Leaf    --      --      Wealth of India.

Activities (4)					
Antioxidant	Phenolic Compounds in Food and Their Effects on Health, 64.				
Antiseptic	J. Nat. Prod. 46(5).				
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.				
Pesticide					

ISOLAPPAOL-C      Seed    --      --      Jim Duke's personal files.

ISOLAPPAOLA      Fruit    --      50.0      Jim Duke's personal files.

ISOLAPPAOLA      Seed    --      --      Jim Duke's personal files.

ISOLEUCINE      Root    300.0    1500.0    -1.03    USDA's Ag Handbook 8 and sequelae)

Activities (3)					
Antiencephalopathic?	Martindale's 29th				
Antipellagric	Martindale's 28th				
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				

ISOVALERIC-ACID      Plant    --      --      \*

Activities (5)					
FLavor FEMA 1-16	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry				
Irritant	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.				
Perfumery	Merck 11th Edition				
Sedative					
Tranquilizer	Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.				

KILOCALORIES      Root    720.0    3790.0    0.93    Father Nature's Farmacy: The aggregate of all these three-letter citations.

LAPPANAESTHIN      Seed    --      --      \*

LAPPANESTHIN      Seed    --      --      Wealth of India.

LAPPAOL-A-THRU-H      Plant    --      --      \*

LAPPAOL-B      Seed    --      --      \*

LAPPAOL-C      Fruit    --      15.0      Jim Duke's personal files.

LAPPAOL-C      Seed    --      --      \*

LAPPAOL-D      Seed    --      --      \*

LAPPAOL-E      Fruit    --      60.0      Jim Duke's personal files.

LAPPAOL-E      Seed    --      --      \*

LAPPAOL-F      Fruit    --      60.0      Jim Duke's personal files.

LAPPAOL-F      Seed    --      2.3      \*

LAPPAOL-H      Seed    --      --      \*

LAPPAOLA      Fruit    --      100.0      Jim Duke's personal files.

LAPPAOLA      Seed    --      --      Jim Duke's personal files.

LAPPAPHEN-A      Root    --      --      Jim Duke's personal files.

LAPPAPHEN-A      Plant    --      --      \*

LAPPAPHEN-B	Root	--	--		Jim Duke's personal files.
LAPPAPHEN-B	Plant	--	--		*
LAPPAURIC-ACID	Plant	--	--		*
LAPPAURIN	Seed	--	--		Wealth of India.
LAURIC-ACID	Plant	--	--		*

**Activities (7)**

- Antibacterial
- Antioxidant IC71=60
- Antiviral
- COX-1-Inhibitor IC40=100
- COX-2-Inhibitor IC20=100
- Candidicide
- Hypercholesterolemic      Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)

LAURIC-ACID	Root	--	--		Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
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**Activities (7)**

- Antibacterial
- Antioxidant IC71=60
- Antiviral
- COX-1-Inhibitor IC40=100
- COX-2-Inhibitor IC20=100
- Candidicide
- Hypercholesterolemic      Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)

LEUCINE	Root	320.0	1600.0	-1.6	USDA's Ag Handbook 8 and sequelae)
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**Activities (2)**

- Antiencephalopathic      Martindale's 29th
- Essential      Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

LIGNIN	Plant	--	--		*
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**Activities (13)**

- AntiHIV
- Antibacterial
- Anticancer
- Anticoronary
- Antidiarrheic      Martindale's 29th
- Antinitrosaminic
- Antioxidant
- Antitumor
- Antiviral
- Chelator
- Hypocholesterolemic
- Laxative
- Pesticide

LINOLEIC-ACID	Fruit	103500.0	124200.0	1.4	Wealth of India.
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**Activities (27)**

## 5-Alpha-Reductase-Inhibitor

AntiMS	Economic & Medicinal Plant Research, 6: 189.
Antiacne	
Antialopecic	
Antianaphylactic	Economic & Medicinal Plant Research, 6: 189.
Antiandrogenic	
Antiarteriosclerotic	
Antiartritic	Economic & Medicinal Plant Research, 6: 189.
Anticoronary	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antieczemic	Economic & Medicinal Plant Research, 6: 189.
Antifibrinolytic	Economic & Medicinal Plant Research, 1: 53.
Antigranular	
Antihistaminic	Economic & Medicinal Plant Research, 6: 189.
Antiinflammatory IC50=31 uM	
Antileukotriene-D4 IC50=31 uM	
Antimenorrhagic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiprostatic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Carcinogenic	Science News, 146: 421.
Comedolytic	
Hepatoprotective	
Hypocholesterolemic	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
Immunomodulator	Economic & Medicinal Plant Research, 6: 189.
Insectifuge	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Metastatic	Science News, 146: 421.
Nematicide	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.
Propepic	

LINOLENIC-ACID                      Fruit      6000.0      7200.0      0.06      Wealth of India.

LUPEOL                                      Leaf      --      --      \*

**Activities (21)**

AntiEBV	
Antiangiogenic 30-50 ug/ml	
Antiedemic	
Antiflu	
Antihyperglycemic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antiinflammatory 1/3 indomethacin	
Antilithic 25 mg/kg/day	
Antimalarial IC50=46.8 ug/ml	Khalid, S.A., Farouk, A., Geary**, T.G., and Jensen, J.B. 1985. Potential Antimalarial Candidates From African Plants: An In Vitro Approach Using Plasmodium falciparum*. Journal of Ethnopharmacology, 15: 201-209, 1986.
Antioxalate 25 mg/kg/day	
Antioxidant 25 mg/kg/day	
Antiperoxidant 25 mg/kg/day	
Antiprostaglandin	
Antirheumatic	
Antitumor	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antiurethrotic	
Antiviral	
Cytotoxic 50-500 ppm	
FPTase-Inhibitor IC50=65 ug/ml	
Hypotensive	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Pesticide	
TOPO-2-Inhibitor IC50=10.4 uM	

LUPEOL                                      Plant      --      --      Jim Duke's personal files.

**Activities (21)**

AntiEBV	
Antiangiogenic 30-50 ug/ml	
Antiedemic	
Antiflu	
Antihyperglycemic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antiinflammatory 1/3 indomethacin	
Antilithic 25 mg/kg/day	
Antimalarial IC50=46.8 ug/ml	Khalid, S.A., Farouk, A., Geary**, T.G., and Jensen, J.B. 1985. Potential Antimalarial Candidates From African Plants: An In Vitro Approach Using Plasmodium falciparum*. Journal of Ethnopharmacology, 15: 201-209, 1986.
Antioxalate 25 mg/kg/day	
Antioxidant 25 mg/kg/day	
Antiperoxidant 25 mg/kg/day	
Antiprostaglandin	
Antirheumatic	
Antitumor	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antiurethrotic	
Antiviral	
Cytotoxic 50-500 ppm	
FPTase-Inhibitor IC50=65 ug/ml	
Hypotensive	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Pesticide	
TOPO-2-Inhibitor IC50=10.4 uM	

LUPEOL-ACETATE Plant -- -- Jim Duke's personal files.

**Activities (2)**

Antihyperglycemic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antiulcer	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

LYSINE Root 670.0 3350.0 -0.36 USDA's Ag Handbook 8 and sequelae)

**Activities (4)**

Antialkalotic	Martindale's 29th
Antiherpetic 0.5-3 g/day	
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Hypoarginanemic 250 mg/kg	Martindale's 29th

MAGNESIUM Root 1262.0 5370.0 1.49 \*

**Activities (65)**

AntiCFS	
AntiLyme 400-1,000 mg	
AntiMS	
AntiPMS 400-800 mg/day/wmn/orl	
AntiPMS 400-800 mg/day/wmn orl	
AntiRaynaud's 280-350 mg/day	
Antiaggregant 400 mg/day	
Antialcoholic	
Antianginal 400 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antianorectic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antianxiety 400 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiarrhythmic 400 mg/day	
Antiarthritic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiasthmatic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiatherosclerotic 400 mg/day	
Anticephalagic	

Anticlimacteric 500-750 mg/day	
Anticonvulsant	Facciola, S. 1998. Cornucopia - A Source Book of Edible Plants. Kampong Publications, Vista CA. 713 pp.
Anticoronary 400 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antidepressant	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidiabetic 400-800 mg/man/day	
Antidysmenorrheic 100 mg 4 x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiendometriotic 500 mg/day	
Antienterotic	
Antiepileptic 450 mg/day	
Antifatigue	
Antifibromyalgic 200-300 mg 3x/day	
Antigastrotic	
Antiglaucomic	
Antihyperkinetic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antihypertensive	
Antihypoglycemic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiinflammatory 100 mg 4 x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiinsomniac	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antilithic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antimastalgic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antimenopausal 500-750 mg/day	
Antimigraine 200 mg/day/man	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antimitral-valve-prolapse	
Antinephrolytic	
Antineurotic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiosteoporotic 500-1,000 mg/day/wmn/ori	
Antiplatelet 500-1,000 mg/day	
Antiretinopathic 400 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antispasmodic	
Antispasmodophilic 500 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antistress 500-750 mg/day	
Antistroke 400 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antisyndrome-X 400 mg/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Anxiolytic 500-750 mg/day	
CNS-Depressant	Facciola, S. 1998. Cornucopia - A Source Book of Edible Plants. Kampong Publications, Vista CA. 713 pp.
Calcium-Antagonist	
Cardioprotective	
Diuretic	
Hypocholesterolemic 400 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Hypotensive 260-500 mg/day	
Immunomodulator	
Insulinogenic 400 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Laxative 300-500 mg/day	
Litholytic	
Myorelaxant 100 mg 4 x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Neurotransmitter	
Tranquilizer 500-750 mg/day	
Uterorelaxant 100 mg 4 x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Vasodilator	

MANGANESE

Root 1.4 6.0 -0.47 \*



Activities (15)	
Anticataract	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antidote (Acetaminophen) 10 g/16hr/man/orl	Martindale's 29th
Antidote (Paracetamol) 10 g/16hr/man/orl	Martindale's 29th
Antieczemic	
Antihepatotic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antioxidant	
Antiparkinsonian 1-5 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Emetic	Martindale's 29th
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Glutathionigenic	Martindale's 29th
Hepatoprotective	
Lipotropic	Merck 11th Edition
Urine-Acidifier 200 mg/3x/day/man/orl	Martindale's 28th
Urine-Deodorant	Martindale's 29th

METHYL-ARCTATE-B	Plant	--	--		*
MUCILAGE	Plant	50000.0	120000.0	-0.25	Pedersen, M. 1987. Nutritional Herbolgy. Pederson Publishing. Bountiful, Utah. 377 pp.

Activities (3)	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Demulcent	
Hypocholesterolemic	

MUCILAGE	Root	11750.0	120000.0	-0.25	*
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Activities (3)	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Demulcent	
Hypocholesterolemic	

MYRISTIC-ACID	Plant	--	--		*
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Activities (6)	
Antioxidant IC71=60	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Cosmetic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Hypercholesterolemic	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
Lubricant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Nematicide	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.

NEOARC-B	Seed	--	--		Jim Duke's personal files.
NEOARCTIN-B	Seed	--	38.0		Jim Duke's personal files.
NIACIN	Root	3.0	13.0	-1.08	*

**Activities (39)**

Allergenic	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
AntiLyme 50 mg/day	
AntiMeniere's	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
AntiRaynaud's 1,500-4,000 mg/day	
Antiacrodynic	
Antiallergic 50 mg/2x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antialzheimeran	
Antiamblyopic	
Antianginal	
Anticataract	
Antichilblain	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Anticonvulsant 3 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antidementia	
Antidermatitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidiabetic	
Antidysphagic	
Antiepileptic 3 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antihangover 50 mg	
Antihistaminic 50 mg 2x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antihyperactivity 1.5-6 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiinsomnic 1 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antineuralgic	
Antiparkinsonian 100 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antipellagric	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiscotomic	
Antispasmodic 100 mg 2x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antivertigo	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Cardioprotective	
Circulotonic	
Fibrinolytic	
Hepatoprotective	
Hepatotoxic	
Hypocholesterolemic 50-100 mg 3x/day	
Hypoglycemic	
Hypolipidemic	
Sedative	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Serotoninerbic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Vasodilator	Martindale's 29th

OCT-2-EN-1-AL	Root	--	--		Jim Duke's personal files.
OCT-3-EN-1-OIC-ACID	Root	--	--		Jim Duke's personal files.
OLEIC-ACID	Fruit	30000.0	36000.0	-0.2	Wealth of India.





PETASITOLONE	Leaf	--	--		*
PHENYL-ACETALDEHYDE	Root	--	--		*
<b>Activities (2)</b>					
Flavor FEMA 0.8-10	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry				
Perfumery	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry				
PHENYLALANINE	Root	330.0	1650.0	-1.12	USDA's Ag Handbook 8 and sequelae)
<b>Activities (7)</b>					
AntiADD 587 mg/day/orl	Martindale's 29th				
Antidepressant 50-4,000 mg/day/man					
Antiparkinsonian 200-500 mg/day/man	Martindale's 28th				
Antisickling 690 ug/ml					
Antivilitigic 100 mg/kg/day/orl/man	Martindale's 29th				
Monoamine-Precursor	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).				
Tremorigenic 1,600-12,600 mg/man/day	Martindale's 28th				
PHOSPHORUS	Root	1027.0	4370.0	0.15	*
<b>Activities (4)</b>					
Antiosteoporotic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Anxiolytic					
Immunostimulant	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Osteogenic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
PHYTOL	Leaf	--	--		*
<b>Activities (1)</b>					
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.				
PHYTOSTEROLS	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
<b>Activities (2)</b>					
Antiprostatotic					
Hypocholesterolemic					
POLYACETYLENES	Root	10.0	20.0		Wealth of India.
POLYGALACTURONASE	Leaf	--	--		Wealth of India.
POLYPHENOL-OXIDASE	Leaf	--	--		Wealth of India.
POLYPHENOLS	Root	19000.0	36500.0	1.0	Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.



**Activities (6)**

FLAVOR FEMA 1-36,000	Aloe Research Council - Duke writeup of non-peer reviewed book by Coats and draft by Henry
Fungicide 2,500-36,000	
Irritant	Zebowitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
Perfumery	
Pesticide	
Rubefacient	Zebowitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.

PROTEIN	Root	24910.0	106000.0	-0.14	*
PROTEIN	Leaf	32000.0	140150.0	-0.72	Wealth of India.
PSEUDOTARAXASTEROL	Plant	--	--		Jim Duke's personal files.
PSEUDOTARAXASTEROL-ACETATE	Plant	--	--		Jim Duke's personal files.
PSI-TARAXASTEROL	Leaf	--	--		*
RIBOFLAVIN	Root	0.8	3.4	-0.15	*

**Activities (15)**

AntiLyme 50 mg/day	
Antiarabiflavinotic 2-10 mg/day orl	Martindale's 28th
Anticarpal-Tunnel 50 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anticataract 15 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anticephalagic	
Anticervicaldysplasic 1.6-10 mg/day	
Anticheilitic	
Antidecubic	
Antiglossitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antikeratitic	
Antimigraine	
Antioxidant	
Antipellagic	
Antiphotophobic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.

SELENIUM	Root	0.3	1.4	-0.26	*
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**Activities (60)**

AP-1-Inhibitor 2-50 uM	
Analgesic 200 ug/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anorexic	Cooper-Driver, G. A., Chemical substances in plants toxic to animals, pp. 213-47 in Rechcigl, M., Jr., ed. CRC Handbook of Naturally Occurring Food Toxicants, CRC Press, Boca Raton, 1983, 339 pp.
AntiHIV	
AntiNF-kB	
Antiacne 200 ug/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiaaggregant	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiangiogenic 2 uM	
Antiangiogenic 230 ug/kg orl rat	
Antiarthritic	
Antiasthmatic	
Antiatherosclerotic	
Anticataract 400 ug/day	
Anticirrhotic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Anticlimacteric 200 ug/day	
Anticoronary 200 ug/day	
Antidandruff	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidepressant 200 ug/day	
Antidote (Mercury)	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antifibrotic 400 ug	
Antigout 200 ug	
Antikeshan	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antileukemic 1.6 mg/kg ipr mus	
Antileukotriene	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antimaculitic	

Antimelanomic 480 ug/kg	
Antimenopausal 200 ug/day	
Antimetastatic 480 ug/kg	
Antimyalgic 200 ug/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiosteoarthritic	
Antioxidant 100-200 (-400) ug/man/day	
Antiparkinsonian 200-400 ug/day	
Antiproliferant 2 uM	
Antiradicular 100-200 (-400) ug/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antirheumatic	
Antisyndrome-X 100-200 (-400) ug/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antitumor 100-200 (-400) ug/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antitumor (Breast) 333.6 ug/day	
Antitumor (Breast) 0.8 mg/kg scu mus	
Antitumor (Breast) 150 ug/kg diet rat	
Antitumor (Breast) 230 ug/kg orl rat	
Antitumor (Lung) 240 ug/kg diet	
Antitumor (Prostate)	
Antitumor (brain) 38-150 ug/kg	
Antiulcerogenic	Rafatullah, S., Tariq, M., Al-Yahya, M.A., Mossa, J.S., and Ageel, A.M. 1989. Evaluation of Turmeric ( <i>Curcuma longa</i> ) for Gastric and Duodenal Antiulcer Activity in Rats. <i>J. of Ethnopharmacology</i> , 29: 25-34, 1990.
Anxiolytic	
Apoptotic	
Cancer-Preventive	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Cardioprotective 200 ug/day	
Depressant	Cooper-Driver, G. A., Chemical substances in plants toxic to animals, pp. 213-47 in Rechcigl, M., Jr., ed. CRC Handbook of Naturally Occurring Food Toxicants, CRC Press, Boca Raton, 1983, 339 pp.
Fungicide	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Immunomodulator	
Immunostimulant 100-200 (-400) ug/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
NF-kB-Inhibitor	
Ornithine-Decarboxylase-Inhibitor	
Pesticide	
Polyamine-Synthesis-Inhibitor	
Prostaglandin-Sparer	Fujita, T., Nakatani, E., Funaishi, N., Sakuma, S., Fujimoto, Y. Potent inhibition of prostaglandin inactivation in rabbit gastric antral mucosal slices by selenium ions in-vitro. <i>J. Pharm. Pharmacol.</i> 42: 655-657, 1990.
Protein-Kinase-C-Inhibitor IC50=2-50 uM	
VEGF-Inhibitor	

SERINE	Root	250.0	1250.0	-1.19	USDA's Ag Handbook 8 and sequelae)
<b>Activities (1)</b>					
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.				
SESQUILIGNANS	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
SILICON	Root	5.3	22.5	-0.24	*
<b>Activities (4)</b>					
Antiarteriosclerotic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Antionychotic					
Antiosteoporotic					
Cardioprotective					
SITOSTEROL	Root	--	--		Wealth of India.
SODIUM	Root	357.0	1520.0	0.19	*
<b>Activities (1)</b>					
Hypertensive	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				

**Activities (5)**

Absorbent	Martindale's 29th
Antidote (Iodine)	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antinesidioblastotic	Martindale's 29th
Emollient	Martindale's 29th
Poultice	Martindale's 29th

## STEARIC-ACID

Root -- -- Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.

**Activities (8)**

5-Alpha-Reductase-Inhibitor	
Cosmetic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
FLavor FEMA 2-4,000	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Hypocholesterolemic	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
Lubricant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Perfumery	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Propepic	
Suppository	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

## STEARIC-ACID

Plant -- -- \*

**Activities (8)**

5-Alpha-Reductase-Inhibitor	
Cosmetic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
FLavor FEMA 2-4,000	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Hypocholesterolemic	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
Lubricant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Perfumery	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Propepic	
Suppository	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

## STEROLS

Root -- 200.0 Wealth of India.

## STIGMASTEROL

Plant -- -- Jim Duke's personal files.

**Activities (12)**

Antihepatotoxic	
Antiinflammatory	Lawrence Review of Natural Products, 1995
Antinociceptive	
Antiophidic 2.3 mg ipr mus	Economic & Medicinal Plant Research, 5: 363.
Antioxidant IC33=10 uM	
Antiviral	Abid Ali Khan, M.M., Jain, D.C., Bhakuni, R.S., Zaim, M., and Thakur, R.S. 1991. Occurrence of some antiviral sterols in Artemisia annua. Plant Science, 75: 161-165, 1991.
Artemicide LCS0=110 ppm	Jung, J.H., Pummangura, S., Chaichantipyuth, c., Patarapanich, C., and McLaughlin, J.L. 1989. Bioactive Constituents of Melodorum fruticosum. Phytochemistry. 29(5): 1667-1670. 1990.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Estrogenic	
Hypocholesterolemic	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.
Ovulant	
Sedative	

## STIGMASTEROL

Root -- -- Wealth of India.

Activities (12)					
Antihepatotoxic					
Antiinflammatory	Lawrence Review of Natural Products, 1995				
Antinociceptive					
Antiphidic 2.3 mg ipr mus	Economic & Medicinal Plant Research, 5: 363.				
Antioxidant IC33=10 uM					
Antiviral	Abid Ali Khan, M.M., Jain, D.C., Bhakuni, R.S., Zaim, M., and Thakur, R.S. 1991. Occurrence of some antiviral sterols in Artemisia annua. Plant Science, 75: 161-165, 1991.				
Artemicide LC50=110 ppm	Jung, J.H., Pummangura, S., Chaichantipyuth, c., Patarapanich, C., and McLaughlin, J.L. 1989. Bioactive Constituents of Melodorum fruticosum. Phytochemistry. 29(5): 1667-1670. 1990.				
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.				
Estrogenic					
Hypocholesterolemic	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.				
Ovulant					
Sedative					

SUGARS	Root	35250.0	150000.0	0.45	*
TARAXASTEROL	Plant	--	--		Jim Duke's personal files.

Activities (2)					
Antiedemic					
Antiinflammatory 1/2 indomethacin					

TARAXASTEROL	Leaf	--	--		Wealth of India.
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Activities (2)					
Antiedemic					
Antiinflammatory 1/2 indomethacin					

TARAXASTEROL-ACETATE	Plant	--	--		Jim Duke's personal files.
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Activities (2)					
Antiedemic IC37.5=100 mg/kg orl mus					
Antiinflammatory					

TARAXASTEROL-ACETATE	Leaf	--	--		Wealth of India.
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Activities (2)					
Antiedemic IC37.5=100 mg/kg orl mus					
Antiinflammatory					

TARAXASTEROL-PALMITATE	Leaf	--	--		Jim Duke's personal files.
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TETRADECA-TRANS-4-CIS-6-DIENE-8,12-DIYNE-1,3-DIOL-DIACETATE	Root	--	--		Jim Duke's personal files.
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TETRADECA-TRANS-4-CIS-6-TRANS-12-TRIENE-8,10-DIYNE-1,3-DIOL-DIACETATE	Root	--	--		Jim Duke's personal files.
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TETRADECA-TRANS-4-TRANS-6-DIENE-8,10,12-TRIYNE-1,3-DIOL-DIACETATE	Root	--	--		Jim Duke's personal files.
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TETRADECA-TRANS-4-TRANS-6-TRANS-12-TRIENE-8,10-DIYNE-1,3-DIOL-DIACETATE	Root	--	--		Jim Duke's personal files.
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THIAMIN	Root	1.0	11.0	0.38	*
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Activities (31)					
Analgesic 1-4 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
AntiLyme 50 mg					
Antialcoholic 50-100 mg/day					
Antialzheimeran 100-3,000 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antianorectic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
Antibackache 1-4 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antiberiberi					
Anticanker					
Anticardiospasmic					
Anticataract					
Anticolitic					
Antidecubitic					
Antideliriant					
Antidementia					
Antidyspeptic					
Antiencephalopathic	Martindale's 29th				
Antifatigue	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
Antigastritic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
Antihangover 50 mg					
Antiheartburn					
Antiherpetic					
Antimigraine					
Antimyocarditic					
Antineuralgic 1-4 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antineurasthenic					
Antineuritic					
Antineuropathic 50 mg	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antipoliomyelitic					
Insectifuge 75-150 mg/man/day	Martindale's 28th				
Neuroprotective					
Pesticide					

THIAMINE	Root	2.6	11.0	1.37	*
THREONINE	Root	260.0	1300.0	-0.72	USDA's Ag Handbook 8 and sequelae)

Activities (4)					
Antioxidant?					
Antiulcer	Martindale's 29th				
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
FLavor FEMA 1,000	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry				

TIGLIC-ACID	Plant	--	--		*
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Activities (1)					
Perfumery					Merck 11th Edition

TIN	Root	5.0	21.0	0.46	*
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Activities (4)					
Antiacne					
Antibacterial					
Pesticide					
Taenicide					Martindale's 28th

TRACHELOGENIN	Fruit	--	--		Jim Duke's personal files.
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**Activities (12)**

AntiHIV IC65=0.52 uM

Antihypertensive

Antiintegrase

Antileukemic

Antilymphomic ED50=2 uM

Antitopoisomerase-II

Calcium-Antagonist IC50=1.1 uM

Cardiac

Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor &amp; Frost, London. 791 pp.

Cytostatic

Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor &amp; Frost, London. 791 pp.

HIV-RT-Inhibitor IC57=0.52 uM

Pesticide

Topoisomerase-Inhibitor

TRACHELOGENIN

Plant

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**Activities (12)**

AntiHIV IC65=0.52 uM

Antihypertensive

Antiintegrase

Antileukemic

Antilymphomic ED50=2 uM

Antitopoisomerase-II

Calcium-Antagonist IC50=1.1 uM

Cardiac

Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor &amp; Frost, London. 791 pp.

Cytostatic

Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor &amp; Frost, London. 791 pp.

HIV-RT-Inhibitor IC57=0.52 uM

Pesticide

Topoisomerase-Inhibitor

TRIDEC-1-ENE-3-5-7-9-11-PENTAYNE

Root

--

1.0

-1.06

Jim Duke's personal files.

TRIDECA-1-11-DIENE-3-5-7-9-TETRAYNE

Root

--

2.0

-0.63

\*

TRIDECA-1-TRANS-11-DIENE-3,5,7,9-TETRAYNE

Root

--

--

Jim Duke's personal files.

TRIDECA-1-TRANS-3-TRANS-11-TRIENE-5,7,9-TRIYNE

Root

--

--

Jim Duke's personal files.

TRYPTOPHAN

Root

60.0

300.0

-1.76

USDA's Ag Handbook 8 and sequelae)



Antiacne 135 mg/day	
Antiacrodermatitic 8-34 mg/day/orl/chd	Martindale's 29th
Antialcoholic	
Antialopecic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antialzheimeran 50 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiangiogenic	
Antianorexic	Martindale's 29th
Antiarthritic 50 mg/3x/day/orl/man	
Anticanker 100 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anticataract 30 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anticoeliac	Martindale's 28th
Anticold 50 mg	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Anticolitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Anticoronary 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antidandruff	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidementia	
Antidiabetic 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antidote (Cadmium)	Let's Live, May 1989.
Antidysgeuzic	
Antieczemic 150 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiencephalopathic	Martindale's 29th
Antiepileptic 100 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antifibrotic 30 mg	
Antifuruncular 45 mg/3x/day/man	Martindale's 28th
Antihangover 15 mg	
Antiherpetic? 25-60 mg/day	
Antiimpotence	Martindale's 29th
Antiinfective 50 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiinfertility 60 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiinsomniac	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antileptic	Martindale's 29th
Antileukonychic	
Antilymphomic	
Antimaculitic	
Antimetastatic	
Antineuropathic	
Antinyctalopic	
Antiobesity 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antiosteoporotic	
Antiperiodontitic	
Antiplaque	Martindale's 29th
Antiprolactin	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiprostatic 50 mg/man/day/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antirheumatic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiseptic 50 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antispare-Tire 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antistomatitic 50 mg/man/3x/day	Martindale's 28th
Antisyndrome-X 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antitinnitic 60-120 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antitriglyceride 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antiulcer 50 mg/3x/day/man	Martindale's 28th
Antiulcer 88 mg/rat/day/15 days	
Antiviral?	Martindale's 29th
Astringent	Martindale's 28th
Collagenic	
Copper-Antagonist	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Deodorant	Martindale's 29th
Detoxicant (Alcohol)	
Ergogenic	
Hypotensive 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95

Immunomodulator	
Immunostimulant	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Immunosuppressant 300 mg/day/6 wks/orl/man	Martindale's 29th
Insulinogenic 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Leptinogenic 30-60 mg/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Mucogenic	Li, K.M. Effect of zinc sulphate on acetic acid-induced gastric ulceration in rats. J. Pharm. Pharmacol. 42: 657-659, 1990.
NF-kB-Inhibitor	
Pesticide	
Spermigenic 60 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Testosteronogenic 60 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Trichomonicide	Martindale's 29th
Vulnerary	Martindale's 28th