

# List of All Chemicals

## **P** Podophyllum peltatum (Berberidaceae)

### Common name(s)

Mayapple

### How used

Medicinal

\*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	All	Low PPM	High PPM	StdDev	*Reference
4'-DEMETHYLPDOPHYLLOTOXIN	Rhizome		--	--		*
<b>Activities (2)</b>						
Topoisomerase-II-Inhibitor 100 uM	Lee, K. H., et al. 1989. Antitumor Agents. 107. New Cytotoxic 4-alkylamino Analogues of 4'-demethyl-epipodophyllotoxin as Inhibitors of Human DNA Topoisomerase II. J Natural Products, 52: 606-613.					
Topoisomerase-II-Inhibitor 10 ug/ml	Figgitt, D. P., Denyer, S. P., Dewick, P. M., Jaackson, D. E., Williams, P. Differential Sensitivity of Fungal Topoisomerases to Podophyllotoxin Derivatives. J Pharm Pharmacol Suppl, 41: 44pp.					
4'DEMETHYLDESOSOXYPODOPHYLLUM-BETA-D-GLUCOSIDE	Rhizome		--	--		*
4'DEMETHYLPDOPHYLLOTOXINGLUCOSIDE	Rhizome		--	--		*
ALPHA-PELTATIN	Rhizome		3500.0	6000.0		*
<b>Activities (8)</b>						
Antiherpetic IC69=414 ppb	Bedows, E. and Hatfield, G.M. An Investigation of the Antiviral Activity of Podophyllum peltatum. J. Nat. Prod. 45: 725.					
Antimeasles	Vlietinck, A.J. and Dommissse, R.A. eds. 1985. Advances in Medicinal Plant Research. Wiss. Verlag. Stuttgart.					
Antitumor ED=2 ppm ivn						
Antiviral IC70=1uM	Bedows, E. and Hatfield, G. M. An investigation of the antiviral activity of Podophyllum peltatum, J. Nat. Prod., 45(6), 1982, 725-9.					
Hepatoprotective	Fitoterapia No.5-1986.					
Pesticide						
Purgative						
Topoisomerase-II-Inhibitor	Thurston, L. S., Lee, K. H., Han, F. S., Liu, Z. C., Cheng, Y. C. Inhibition of Human DNA Topoisomerase II by Podophyllatoxin Analogues. Abstract Internat Res Cong Nat Prod Coll Pharm University N Carolina, Chapel Hill NC, July 1985.					
ALPHAPELTATIN-GLUCOSIDE	Plant		--	--		*
ASTRAGALIN	Plant		--	--		*
<b>Activities (7)</b>						
ACE-Inhibitor ID50=180 ug/ml rat (24 hr.)						
Aldose-Reductase-Inhibitor IC30=1 uM						
Aldose-Reductase-Inhibitor IC62=10 uM	Shimizu, M., Ito, T., Terashima, S., Hayashi, T., Arisawa, M., Morita, N., Kurokawa, S., Ito, K., and Hashimoto, Y. 1984. Inhibition of Lens Aldose Reductase by Flavonoids. Phytochemistry, 23: 1885-1888.					
Antileukemic						
Expectorant						
Hypotensive	Uchida, U., Ohta, H., Niwa, M., Mori, A., Nonaka, G-i., Nishioka, I., and Zaki, M. 1989. Prolongation of Life Span of Stroke-Prone Spontaneously Hypertensive Rats (SHRSP) Ingesting Persimmon Tannin. Chem. Pharm. Bull. 38(4): 1049-1052, 1990.					
Immunostimulant						
BERBERINE	Plant		--	--		*
<b>Activities (130)</b>						
(+)-Inotropic	Mills, Simon and Bone, Kerry. 2000. Phytotherapy. Churchill Livinston, Edinburgh.					
Abortifacient						
Adrenolytic	Mills, Simon and Bone, Kerry. 2000. Phytotherapy. Churchill Livinston, Edinburgh.					
Amebicide 200 ug/ml	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).					
Amebicide EC83=100 ug/ml orl rat	Mills, Simon and Bone, Kerry. 2000. Phytotherapy. Churchill Livinston, Edinburgh.					
Analgesic						
Anesthetic						

Antiacetylcholinesterase	
Antiacne	Mills, Simon and Bone, Kerry. 2000. <i>Phytotherapy</i> . Churchill Livinston, Edinburgh.
Antiadrenergic	Huang, K. C. 1993. <i>The Pharmacology of Chinese Herbs</i> . CRC Press, Boca Raton, FL 388 pp.
Antiaggregant	
Antialzheimeran	
Antiamnesic	Mills, Simon and Bone, Kerry. 2000. <i>Phytotherapy</i> . Churchill Livinston, Edinburgh.
Antiangiogenic	
Antiarrhythmic	
Antiarthritic	
Antibacillus MIC=200 ug/ml	
Antibacterial 100 mg/4x/day	
Antibacterial 12.5-2,500 ug/ml	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antibacterial MIC=6-630 ug/ml	
Antibiotic	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Anticancer	
Anticariogenic	Mills, Simon and Bone, Kerry. 2000. <i>Phytotherapy</i> . Churchill Livinston, Edinburgh.
Antichlamydial	
Anticholelithic 5-20 mg/3x/day/orl	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Anticholera 150 mg/man/day	Martindale's 28th
Anticirrhotic	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Anticonjunctivitic 0.20%	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Anticonvulsant	Williamson, E. M. and Evans, F. J., <i>Potter's New Cyclopaedia of Botanical Drugs and Preparations</i> , Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
Antidiarrheic 100 mg/4x/day	
Antidysenteric 100 mg/4x/day	
Antiedemic	Mills, Simon and Bone, Kerry. 2000. <i>Phytotherapy</i> . Churchill Livinston, Edinburgh.
Antientotoxic	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. <i>Herbal Medicine - A Guide for Health-care Professionals</i> . The Pharmaceutical Press, London. 296pp.
Antienterotoxic	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiescherichic	
Antigiardial 10 mg/kg/day	
Antiglaucomic	
Antigonorrhoea	
Antihepatomic	Mills, Simon and Bone, Kerry. 2000. <i>Phytotherapy</i> . Churchill Livinston, Edinburgh.
Antihepatotic	
Antiherpetic	
Antihistaminic	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. <i>Herbal Medicine - A Guide for Health-care Professionals</i> . The Pharmaceutical Press, London. 296pp.
Antiinflammatory	
Antiischemic	Mills, Simon and Bone, Kerry. 2000. <i>Phytotherapy</i> . Churchill Livinston, Edinburgh.
Antileishmanic 10 ug/ml	
Antilipogenic IC63=10 uM	Mills, Simon and Bone, Kerry. 2000. <i>Phytotherapy</i> . Churchill Livinston, Edinburgh.
Antimalarial 0.14-0.36 ug/ml	
Antimalarial 50 uM	
Antimitotic	Mills, Simon and Bone, Kerry. 2000. <i>Phytotherapy</i> . Churchill Livinston, Edinburgh.
Antimuscarinic	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. <i>Herbal Medicine - A Guide for Health-care Professionals</i> . The Pharmaceutical Press, London. 296pp.
Antimyalgic	
Antimycotic	Mills, Simon and Bone, Kerry. 2000. <i>Phytotherapy</i> . Churchill Livinston, Edinburgh.
Antineoplastic	
Antinephritic	
Antiperistaltic	Bruneton, J. 1999. <i>Pharmacognosy, Phytochemistry, Medicinal Plants</i> . 2nd Ed. Lavoisier Publishing, Paris. 1119 pp.
Antipharyngitic	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiphotooxidative	
Antiplasmodial IC50=0.14-0.36 ug/ml	
Antipneumonic	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antipyretic 3 x aspirin	
Antisalmonella	
Antisecretory	
Antiseptic 25 ug/ml	
Antishigellic 12.5 ug/ml	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antispasmodic	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants</i> . Taylor & Frost, London. 791 pp.
Antispermigenic	
Antistaphylococccic	
Antistrep	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antisyphilitic	
Antitrichomic 0.20%	

Antitrypanosomic	Williamson, E. M. and Evans, F. J., <i>Potter's New Cyclopaedia of Botanical Drugs and Preparations</i> , Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
Antitubercular MIC=25 ug/ml	
Antitumor (brain) IC91=150 ug/ml	Werbach & Murray, 1994.
Antiulcer	
Antivaginitic	Huang, K. C. 1993. <i>The Pharmacology of Chinese Herbs</i> . CRC Press, Boca Raton, FL 388 pp.
Antiviral	Huang, K. C. 1993. <i>The Pharmacology of Chinese Herbs</i> . CRC Press, Boca Raton, FL 388 pp.
Astringent	
Bilirubinolytic	
COX-2-Inhibitor 100 ug/ml	
Calcium-Antagonist	Mills, Simon and Bone, Kerry. 2000. <i>Phytotherapy</i> . Churchill Livingstone, Edinburgh.
Candidicide	
Cardiodepressant	Huang, K. C. 1993. <i>The Pharmacology of Chinese Herbs</i> . CRC Press, Boca Raton, FL 388 pp.
Cardiotonic	
Carminative	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. <i>Herbal Medicine - A Guide for Health-care Professionals</i> . The Pharmaceutical Press, London. 296pp.
Cholagogue	
Cholekinetic	
Choleretic	Williamson, E. M. and Evans, F. J., <i>Potter's New Cyclopaedia of Botanical Drugs and Preparations</i> , Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
Collyrium	
Cyclooxygenase-Inhibitor	
Cytotoxic	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants</i> . Taylor & Frost, London. 791 pp.
Digestive	
Diuretic	
Emetic	
Fungicide 12.5-150 ug/ml	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Glaucomagenic	
Hemostat	
Hypocholesterolemic	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.
Hypoglycemic	
Hypotensive	
Immunostimulant	
Lachrymatory	Mills, Simon and Bone, Kerry. 2000. <i>Phytotherapy</i> . Churchill Livingstone, Edinburgh.
Larvicide 9 ppm	
Leucocytogenic	
Lipase-Inhibitor	Medline (post 1990 searches filed in my computer)
Lipoxygenase-Inhibitor IC50=118 uM	
Mutagenic	
Mycobactericide MIC=25-50 ug/ml	
Mydriatic	Mills, Simon and Bone, Kerry. 2000. <i>Phytotherapy</i> . Churchill Livingstone, Edinburgh.
Myocardiodepressant	
Myorelaxant	
Pesticide	
Phototoxic 9 ppm	
Plasmodicide IC50=0.14-0.36 ug/ml	
Prostaglandin-Synthesis-Inhibitor 25 mg/kg ivn rbt	Huang, C. G., Chu, Z. L., Yang, Z. M. 1991. Effect of Berberine on Synthesis of Platelet TXA2 and Plasma PGI2 in Rabbits. <i>Chung-Kuo Yao Li Hsueh Pao</i> , 12(6): 526-528.
Protisticide IC50=0.14-0.36 ug/ml	
RNA-Depressant	
RT-Inhibitor	
Respiradepressant	Martindale's 28th
Sedative	
Stomachic	
Topoisomerase-II-Inhibitor 2.5 uM	Kobayashi, Y, Yamashita, Y., Fujii, N., Takaboshi, K., Kawakami, T., Kawamura, M., Mizukami, T., Nakano, H. 1995. Inhibitors of DNA Topoisomerase I and II Isolated From the <i>Coptis</i> Rhizomes. <i>Planta Medica</i> , 61: 414-418.
Trichomonicide	Martindale's 29th
Trypanocide	
Uterocontractant	
Uterotonic	Williamson, E. M. and Evans, F. J., <i>Potter's New Cyclopaedia of Botanical Drugs and Preparations</i> , Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
Vagostimulant man	
Vasoconstrictor	
Vasodilator 2 mg/kg cat	
Vermifuge	
Vibriofuge	

BETA-PELTATIN	Rhizome	1750.0	3000.0	*
<b>Activities (8)</b>				
Antitherpetic IC78=414 ppb	Bedows, E. and Hatfield, G.M. An Investigation of the Antiviral Activity of Podophyllum peltatum. J. Nat. Prod. 45: 725.			
Antimeasles	Vlietinck, A.J. and Domisse, R.A. eds. 1985. Advances in Medicinal Plant Research. Wiss. Verlag. Stuttgart.			
Antitumor ED=2 ppm iv				
Antiviral IC78=1uM=400 ppb	Bedows, E. and Hatfield, G. M. An investigation of the antiviral activity of Podophyllum peltatum, J. Nat. Prod., 45(6), 1982, 725-9.			
Hepatoprotective				
Irritant	Merck 11th Edition			
Pesticide				
Purgative				
BETA-PELTATIN-GLUCOSIDE	Rhizome	--	--	*
CALCIUM-OXALATE	Plant	--	--	*
<b>Activities (4)</b>				
Emetic				
Inflammatory				
Laxative				
Lithogenic				
DEHYDROPODOPHYLLOTOXIN	Root	--	--	*
DESOXYPODOPHYLLOTOXIN	Root	--	1000.0	*
<b>Activities (8)</b>				
Anticarcinomic 2.6 ppb				
Antitherpetic	Grenand, P., Moretti, C., and Jacquemin, H. 1987. Pharmacopees Traditionnelles en Guyane. l'ORSTROM, Paris. 569 pp.			
Antitumor (Nasopharynx)	Grenand, P., Moretti, C., and Jacquemin, H. 1987. Pharmacopees Traditionnelles en Guyane. l'ORSTROM, Paris. 569 pp.			
Antiviral IC84=1 uM	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.			
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 207.			
Insecticide				
Larvicide				
Pesticide				
GALLIC-ACID	Plant	--	--	*
<b>Activities (62)</b>				
ACE-Inhibitor IC50=7.7 mM/l				
Analgesic				
AntiHIV				
AntiMRSA				
Antiadenovirus	Economic & Medicinal Plant Research, 5: 194.			
Antiallergenic	Dorsch, W., Wagner, H. New Antiasthmatic Drugs from Traditional Medicine? Int Arch Allergy Appl Immunol 94: 262-265, 1991.			
Antianaphylactic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.			
Antiangiogenic				
Antiasthmatic	Watt, J.M., and Breyer-Brandwijk, M.G. The Medicinal and Poisonous Plants of Southern and Eastern Africa. 1962.			
Antibacterial MIC=1,000 ug/ml				
Antibronchitic	Dorsch, W., Wagner, H. New Antiasthmatic Drugs from Traditional Medicine? Int Arch Allergy Appl Immunol 94: 262-265, 1991.			
Anticancer				
Anticarcinomic ED50=3				
Antiescherichic				
Antifibrinolytic	Economic & Medicinal Plant Research, 1: 53.			
Antiflu	Economic & Medicinal Plant Research, 5: 194.			
Antihepatotoxic	Okuda, T., Yoshida, T., and Hatano, T. Antioxidant Effects of Tannins and Related Polyphenols. Phenolic Compounds in Food and Their Effects on Health, Ch.7 p.93.			
Antitherpetic EC50=>10 ug/ml				
Antiinflammatory	Kroes, B.H., et al. 1991. Anti-Inflammatory Activity of Gallic Acid. Planta Medica, 58(6): 499.			
Antileishmanic EC50=4.4 ug/ml				
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.			
Antinitrosaminic				

Antioxidant IC44=33 ppm	
Antioxidant 7 x quercetin	
Antioxidant 2/3 BHA	
Antiperiodontic 10 ug/ml	
Antiperoxidant IC50=69 uM	
Antipolio	Economic & Medicinal Plant Research, 5: 194.
Antiproteolytic 10 ug/ml	
Antiradicular 7 x quercetin	
Antiradicular IC50=4.9 uM	
Antiseptic	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.
Antistaphylococcic MIC=1,000 ug/ml	
Antitumor	
Antitumor-Promoter	
Antiviral	
Apoptotic	
Astringent	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.
Bacteristat	Lamikanra, A., Ogundaini, A.O., and Ogungbamila*, F.O. Antibacterial Constituents of Alchornea cordifolia Leaves. Phytotherapy Research 4(5): 198.
Bronchodilator	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Candidicide	
Carcinogenic	
Choleretic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Cyclooxygenase-Inhibitor	
Cytotoxic 500 uM	
Floral-Inhibitor	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Gram(+)icide MIC=1,000 ug/ml	
Gram(-)icide MIC=1,000 ug/ml	
Hemostat	
Hepatoprotective	Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.
Immunomodulator	
Immunostimulant	McKenna, D. J., Hughes, K., and Jones, K. 2000. Green Tea Monograph. Alternative Therapies, 6(3): 61-82.
Immunosuppressant	
Insulin-Sparing	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Myorelaxant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
NO-Inhibitor IC-26=250 uM	
Nephrotoxic	Martindale's 29th
Pesticide	
Styptic	
Topoisomerase-I-Inhibitor	Hamada, S. I., Kataoka, T., Woo, J. T., Yamada, A., Yoshida, T., Nishimura, T., Otake, N., Nagai, K. 1997. Immunosuppressive Effects by Gallic Acid and Chebulagic Acid on CTL-Mediated Cytotoxicity. Biol Pharm Bull, 20: 1017-1019.
Xanthine-Oxidase-Inhibitor IC50=24 uM	Hatano, T., Yasuhara, T., Yoshihara, R., Agata, I., Noro, T., and Okuda, T. 1989. Effects of Interaction of Tannins with Co-existing Substances.VII. Inhibitory Effects of Tannins Related Polyphenols on Xanthine Oxidase. Chem. Pharm. Bull. 38(5): 1224-1229
ISORHAMNETIN	Plant -- -- *

**Activities (11)**

## Antibacterial

Antihistaminic 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.

Antiinflammatory 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.

Antioxidant 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.

Antispasmodic 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.

Cancer-Preventive Stitt, P. A. *Why George Should Eat Broccoli*. Dougherty Co, Milwaukee, WI, 1990, 399 pp.

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.

## MAO-Inhibitor

## Pesticide

Quinone-Reductase-Inducer Yannai, S., Day, A. J., Williamson, G., Rhodes, M. J. C. 1998. Characterization of Flavonoids as Monofunctional or Bifunctional Inducers of Quinone Reductase in Murine Hepatoma Cell Lines. *Food Chem Toxicol*, 36(8): 623-630.

## Vasodilator

## KAEMPFEROL

Rhizome

--

--

\*

**Activities (75)**

## 11B-HSD-Inhibitor

## 5-Lipoxygenase-Inhibitor IC50 (uM)=20

Aldose-Reductase-Inhibitor 100 uM Oliveira, T. T., Nagem, T. J., Miranda, L. C. G., Paula, V. F., Teixeira, M. A. 1997. Inhibitory Action on Aldose Reductase by Soybean Flavonoids. *J Braz Chem Soc*, 8(3): 211-213.

## Antiaflatoxin IC50=8.73 uM

## Antiaflatoxin IC50=3.28 ppm

## Antiaggregant 30 uM

## Antiallergic

## Antibacterial 20 ug/ml

## Anticancer

Antifertility 250 mg/kg/day/60 days/orl rat Kumar, P., Dixit\*, V.P., and Khanna, P. Antifertility Studies of Kaempferol: Isolation and Identification from Tissue Culture of some Medicinally Important Plant Species. *Plantes medicinales et phytotherapie*, 23: 193-201, 1989.

## Antingivitic 20 ug/ml

Antiherpetic 23-92 ug/ml Amoros, M., Simoes, C.M.O., Girre, L., et al. Synergistic Effect Of Flavones And Flavonols Against Herpes Simplex Virus Type 1 In Cell Culture. Comparison With The Antiviral Activity Of Propolis. *J. of Natural Products* 55(12):1732-1740, 1992.

Antihistaminic 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.

## Antiimplantation

## Antiinflammatory 20 mg/kg

## Antiinflammatory 200 mg/kg ipr rat

Antileukemic IC50=3.1 ug/ml *Life Sciences* 55: 1061.

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

Antimutagenic ID50=10-40 nM *Phenolic Compounds in Food and Their Effects on Health. Antioxidants & Cancer Prevention*. Huang, M.T., Ho, C.T. and Lee, C.Y. eds. 1992. ACS Symposium Series 507.ACS, Washington 402 pp.

## Antioxidant IC50=40 uM

## Antioxidant 3/4 quercetin

## Antioxidant IC50=1.2 ug/ml

## Antiperiodontic 20 ug/ml

## Antiplateque 20 ug/ml

## Antiradicular 7 x quercetin

## Antiseptic 20 ug/ml

## Antiserotonin 200 mg/kg ipr rat

Antispasmodic 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.

## Antistaphylococcic

## Antitumor

Antitumor-Promoter Yasukawa, K., Takido, M., Takeuchi, M., Sato, Y., Nitta, K., and Nakagawa, S. 1989. Inhibitory Effects of Flavonol Glycosides on 12-O-Tetradecanoylphorbol-13-acetate-Induced Tumor Promotion. *Chem. Pharm. Bull.* 38(3): 774-776, 1990.

## Antiulcer 50-200 mg/kg ipr rat

## Antiviral 23-92 ug/ml

## Apoptotic 60 uM

Aromatase-Inhibitor IC <sub>12</sub> =1 uM/l	Journal of Medicinal Food 2: 235.1999.			
COX-2-Inhibitor				
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.			
Carcinogenic	Hutchings, A, Scott, AH, Lewis, G, and Cunningham, A. 1996. Zulu Medicinal Plants. An inventory. University of Natal Press, Pietermaritzburg. 450 pp.			
Choleretic	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.			
Copper-Chelator				
Cyclooxygenase-Inhibitor IC <sub>50</sub> (uM) =20				
Cytotoxic				
Diaphoretic?	Lawrence Review of Natural Products, Dec-90.			
Diuretic				
Estrogenic EC <sub>50</sub> =0.1-25 uM/l	Journal of Medicinal Food 2: 227.1999.			
Estrogenic EC <sub>50</sub> =0.56 uM				
Fungicide 20 ug/ml	Father Nature's Farmacy: The aggregate of all these three-letter citations.			
HIV-RT-Inhibitor IC <sub>50</sub> =50-150 ug/ml	Garcia, J., Morin,* C., Nyasse, B., Sondengam, B-L., Tchouankeu, J-C., and Tsamo, E. Complete Structural Assignments Of An Ergosterol Derivative From Entandrophragma utile. Journal of Natural Products, 54(1): 136-142, 1991.			
Hepatoprotective IC <sub>50</sub> =5.46 uM				
Hepatoprotective IC <sub>50</sub> =1.30 ppm				
Hypotensive				
ICAM-1-Inhibitor				
Inotropic				
Iodothyronine-Deiodinase-Inhibitor	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.			
JNK-Inhibitor				
Lipoxygenase-Inhibitor	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.			
MAO-Inhibitor				
Mutagenic				
NO-Inhibitor IC <sub>50</sub> =13.9 uM				
Natriuretic				
Neuroprotective				
PAF-Inhibitor				
Pesticide				
Protisticide	Meckes, M., Calzada, F., Tapia-Contreras, A., Cedillo-Rivera, R. 1999. Antiprotozoal Properties of Helianthemum glomeratum. Phytotherapy Research, 13(2): 102-105.			
Quinone-Reductase-Inducer 3 uM				
TNF-alpha-Inhibitor IC <sub>50</sub> =3.99 uM				
Teratologic				
Topoisomerase-I-Inhibitor	Santti, R., Makela, S., Strauss, L., Korman, J., Kostian, M. L. 1998. Phytoestrogens: Potential Endocrine Disruptors in Males. Toxicol Ind Health, 14: 223-237.			
Topoisomerase-II-Inhibitor IC <sub>50</sub> =8.1 ug/ml	Constantinou, A., Mehta, R., Runyan, C., Rao, K., Vaughan, A., Moon, R. 1995. Flavonoids as DNA Topoisomerase Antagonists and Poisons: Structure-Activity Relationships. J Natural Products, 58: 217-225.			
Tyrosinase-Inhibitor ID <sub>50</sub> =230 uM				
Uterotrophic EC <sub>50</sub> =0.1-25 uM/l	Journal of Medicinal Food 2: 227.1999.			
Vasodilator				
cAMP-Phosphodiesterase-Inhibitor				
iNOS-Inhibitor IC <sub>50</sub> <15 uM				
iNOS-Inhibitor IC <sub>50</sub> =13.9 uM				
KAEMPFEROL-3-O-GLUCOSIDE	Rhizome	--	--	*
LIGNAN-K	Plant	--	--	*
LIGNAN-M	Plant	--	--	*
METHYLPDOPHYLLOQUERCETIN	Root	--	--	*
PICROPODOPHYLLIN	Rhizome	--	--	*
<b>Activities (1)</b>				
Antihepatotoxic				
PODOPHYLLIC-ACID	Rhizome	--	--	*

<b>Activities (1)</b>					
Antimitotic					
<b>PODOPHYLLIN</b>	<b>Rhizome</b>	--	--		*
<b>Activities (8)</b>					
Anticondylomata	Martindale's 29th				
Antimitotic	Martindale's 29th				
Antiplantar	Martindale's 29th				
Cholagogue					
Embryocide	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.				
Emetic					
Peristaltic	Martindale's 29th				
Purgative	Martindale's 29th				
<b>PODOPHYLLOTOXIN</b>	<b>Rhizome</b>	<b>7000.0</b>	<b>12000.0</b>	<b>-1.0</b>	<b>*</b>
<b>Activities (26)</b>					
Abortifacient					
Anticondylomata	Martindale's 29th				
Antifertility	Pei-Gen, X., and Nai-Gong, W. Can ethnopharmacology contribute to the development of anti-fertility drugs? Journal of Ethnopharmacology, 32: 167-177, 1991.				
Antiherpetic IC88=414 ppb	Bedows, E. and Hatfield, G.M. An Investigation of the Antiviral Activity of Podophyllum peltatum. J. Nat. Prod. 45: 725.				
Antileukemic 5.4 ppm					
Antimeasles	Vlietinck, A.J. and Dommissie, R.A. eds. 1985. Advances in Medicinal Plant Research. Wiss. Verlag. Stuttgart.				
Antimelanomic ED50=>20 ug/ml	J. Ethnopharmacology, 32: 117.				
Antimitotic	Wagner & Wolff, eds. 1977. New Natural Products (RS164. I56. 176)				
Antisarcomic ED50=0.012 ug/ml	J. Ethnopharmacology, 32: 117.				
Antitumor 2 ppm iv					
Antitumor (Breast) ED50=0.041 ug/ml	J. Ethnopharmacology, 32: 117.				
Antitumor (Colon) ED50=0.011 ug/ml	J. Ethnopharmacology, 32: 117.				
Antitumor (Lung) ED50=0.0181 ug/ml	J. Ethnopharmacology, 32: 117.				
Antiviral IC88=1 uM	Bedows, E. and Hatfield, G. M. An investigation of the antiviral activity of Podophyllum peltatum, J. Nat. Prod., 45(6), 1982, 725-9.				
Cathartic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
Embryocide	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.				
Fungicide					
Herbicide 50 ppm					
Insecticide 1-20 ppm					
Irritant	Jim Duke's personal files.				
Juvabional 1,200 ppm					
Larvicide 5 ppm	Berenbaum, M. R., The natives knew, Chemtech, (May), 1990, 275-279.				
Pesticide					
Piscicide 1-20 ppm					
Purgative					
Topoisomerase-II-Inhibitor 10 ug/ml					
<b>PODOPHYLLOTOXIN-O-BETA-D-GLUCOSIDE</b>	<b>Plant</b>	<b>--</b>	<b>--</b>		<b>*</b>
<b>PODORHIZOL-BETA-D-GLUCOSIDE</b>	<b>Plant</b>	<b>--</b>	<b>--</b>		<b>*</b>
<b>QUERCETIN</b>	<b>Resin, Exudate, Sap</b>	<b>--</b>	<b>50000.0</b>		<b>*</b>
<b>Activities (176)</b>					
11B-HSD-Inhibitor					
5-Lipoxygenase-Inhibitor IC50 (uM)=4					
ATPase-Inhibitor	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.				
Aldehyde-Oxidase-Inhibitor IC70-96=10 uM					
Aldose-Reductase-Inhibitor 100 uM					
Aldose-Reductase-Inhibitor 4 ug/ml	Ichikawa, K., et al. 1991. Isolation and Structure Determination of Aldose Reductase Inhibitors from Traditional Thai Medicine, and Syntheses of Their Derivatives. Sankyo Kenkyusho Nempo, 43: 99-110.				
Aldose-Reductase-Inhibitor IC50=0.84 ug/ml cow	Okada, Y. et al. 1995. Search for Naturally Occurring Substances to Prevent the Complications of Diabetes. II. Inhibitory Effect of Coumarin and Flavonoid Derivatives on Bovine Lens Aldose Reductase and Rabbit Platelet Aggregation. Chem Pharm Bull 43(8):1385-1387				



Aldose-Reductase-Inhibitor IC50=0.344 uM	Mao, X. M., Zhang, J. Q. 1993. Inhibition of Aldose Reductase by Extracts of Chinese Herbal Medicine. <i>Zhongguo Zhongyao Zazhi</i> , 18(10): 623-624.
Allelochemic IC82=1 mM	Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, <i>Herbs, Spices &amp; Medicinal Plants: Recent Advances in Botany, Horticulture, &amp; Pharmacology</i> , v. 4, Oryx Press, Phoenix, 1989, 267pp.
Allergenic	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants</i> . Taylor & Frost, London. 791 pp.
Analgesic	
AntiCrohn's 400 mg/man/3x/day	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
AntiGTF ID50=120 ug/ml	
AntiHIV	
AntiPMS 500 mg/2x/day/wmn	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiaflatoxin IC50=25 uM	
Antiaflatoxin IC50=7.5 ppm	
Antiaggregant IC50=55 uM	<i>Economic &amp; Medicinal Plant Research</i> , 5: 333.
Antiaggregant 30 uM	
Antiaging	
Antiallergic IC50=14 uM	Jim Duke's personal files.
Antialzheimeran	
Antianaphylactic	Meli, R., Autore, G., Di Carlo, G., Capasso, F. Inhibitory Action of Quercetin on Intestinal Transit in Mice. <i>Phytotherapy Research</i> 4(5): 201, 1990.
Antiangiogenic	
Antiarthritic	
Antiasthmatic IC50=14 uM	
Antiatherosclerotic	
Antibacterial	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants</i> . Taylor & Frost, London. 791 pp.
Anticarcinomic (Breast) IC50=1.5 uM	Medline (post 1990 searches filed in my computer)
Anticariogenic ID50=120 ug/ml	
Anticataract	
Anticolitic 400 mg/man/3x/day	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Anticomplementary	
Anticystitic 1,000 mg/day/4 weeks	
Antidepressant	
Antidermatitic	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antidiabetic	
Antielastase IC50=0.8 ug/ml	
Antiencephalitic	<i>Economic &amp; Medicinal Plant Research</i> , 5: 199.
Antiescherichic	
Antiestrogenic	
Antifeedant IC52=<1,000 ppm diet	Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, <i>Herbs, Spices &amp; Medicinal Plants: Recent Advances in Botany, Horticulture, &amp; Pharmacology</i> , v. 4, Oryx Press, Phoenix, 1989, 267pp.
Antifibrosarcomic	
Antiflu	Vlietinck, A.J. and Dommissie, R.A. eds. 1985. <i>Advances in Medicinal Plant Research</i> . Wiss. Verlag. Stuttgart.
Antigastric	Rastitel'nye Resursy, 21: 85.
Antigonadotropic	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants</i> . Taylor & Frost, London. 791 pp.
Antihepatotoxic	Joyeux, M., Rolland, A., Fleurentin, J., Mortier, F., and Dorfman, P. 1989. Tert-Butyl Hydroperoxide-Induced Injury in Isolated Rat Hepatocytes: A Model for Studying Anti-Hepatotoxic Crude Drugs. <i>Planta Medica</i> 56(2): 171-173, 1990.
Antiherpetic 48-150 ug/ml	
Antihistaminic IC50=<10 uM	
Antihydrophobic	Vlietinck, A.J. and Dommissie, R.A. eds. 1985. <i>Advances in Medicinal Plant Research</i> . Wiss. Verlag. Stuttgart.
Antihypertensive	Huang, K. C. 1993. <i>The Pharmacology of Chinese Herbs</i> . CRC Press, Boca Raton, FL 388 pp.
Antiinflammatory 20-150 mg/kg	<i>Fitoterapia</i> No.5-1990.
Antileishmanic IC50=64	
Antileukemic IC50=10 uM	<i>Economic &amp; Medicinal Plant Research</i> , 5: 225.
Antileukemic IC50=>10 ug/ml	<i>Life Sciences</i> 55: 1061.
Antileukemic 5.5-60 uM	
Antileukotriene	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antilipoperoxidant IC67=50	
Antimalarial IC50=1-6.4 ug/ml	<i>Medicinal and Poisonous Plants of the Tropics</i> . Leeuwenberg, A.J.M., ed. Pudoc, Wageningen. 1987.
Antimelanomic	
Antimetastatic	

Antimutagenic ID50=2-5 nM	Phenolic Compounds in Food and Their Effects on Health. Antioxidants & Cancer Prevention. Huang, M.T., Ho, C.T. and Lee, C.Y. eds. 1992. ACS Symposium Series 507.ACS, Washington 402 pp.
Antimutagenic ID50=0.62 ug/ml	
Antimyocarditic	Economic & Medicinal Plant Research, 5: 199.
Antinitrosaminic	
Antinociceptive	
Antioxidant IC96=300 ppm	Phenolic Compounds in Food and Their Effects on Health. Antioxidants & Cancer Prevention. Huang, M.T., Ho, C.T. and Lee, C.Y. eds. 1992. ACS Symposium Series 507.ACS, Washington 402 pp.
Antioxidant ED50=2.3 uM	Seidel, V., Verholle, M., Malard, Y., Tilleguin, F., Fruchart, J-C., Duriez, P., Bailleul, F., Teissier, E. 2000. Phenylpropanoids from <i>Ballota nigra</i> L. Inhibit in vitro LDL Peroxidation. <i>Phytotherapy Research</i> , 14(2): 93-98.
Antioxidant 4.7 x Vit. E	
Antioxidant IC47=10 uM	
Antipancreatic	Joseph, J., Nadeau, D. and Underwood, A. 2001. <i>The Color Code</i> . Hyperion, NY.
Antiperiodontal	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiperistaltic	
Antipermeability	
Antiperoxidant	<i>Planta Medica</i> , 57: A110, 1991.
Antipharyngitic	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiplateau	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiplasmodial IC50=13-64	
Antipodriac	
Antipolio	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiproliferant 10 nM	
Antiprostanoid	
Antiprostatic	Joseph, J., Nadeau, D. and Underwood, A. 2001. <i>The Color Code</i> . Hyperion, NY.
Antipsoriac	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiradicular IC50=4.6 uM	<i>Planta Medica</i> , 56(6): 695, 1990.
Antispasmodic	
Antistreptococcic ID50=120 ug/ml	
Antithiamin	Phenolic Compounds in Food and Their Effects on Health, 69.
Antithrombic	
Antitrypanosomic IC50=13	
Antitumor 10 uM	
Antitumor (Bladder)	
Antitumor (Breast)	
Antitumor (Colon)	
Antitumor (Lung)	
Antitumor (Ovary)	
Antitumor (Skin) 20 uM	
Antitumor-Promoter	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiulcer	
Antiviral IC50=10 uM	Economic & Medicinal Plant Research, 5: 225.
Antiviral 48-150 ug/ml	Amoros, M., Simoes, C.M.O., Girre, L., et al. Synergistic Effect Of Flavones And Flavonols Against Herpes Simplex Virus Type 1 In Cell Culture. Comparison With The Antiviral Activity Of Propolis. <i>J. of Natural Products</i> 55(12):1732-1740, 1992.
Apoptotic 20-60 uM	
Bacteristat 10 mg/ml	
Bradycardiac	Huang, K. C. 1993. <i>The Pharmacology of Chinese Herbs</i> . CRC Press, Boca Raton, FL 388 pp.
COMT-Inhibitor	
COX-2-Inhibitor <40 uM	
Calmodulin-Antagonist	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Cancer-Preventive	Stitt, P. A. <i>Why George Should Eat Broccoli</i> . Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Candidicide	
Capillariprotective	Merck 11th Edition
Carcinogenic 40,000 ppm (diét) mus	Nigg, H.N. and Seigler, D.S., eds. 1992. <i>Phytochemical Resources for Medicine and Agriculture</i> . Plenum Press, New York. 445 pp.
Catabolic	
Copper-Chelator	
Cyclooxygenase-Inhibitor	
Cytochrome-P450-1A2-Inhibitor	
Cytotoxic ED50=70 ug/ml	Matsukawa, Y., et al. The Effect of Quercetin and Other Flavonoids on Cell Cycle Progresssion and Growth of Human Gastric Cancer Cells. <i>Planta Medica</i> , 56(6): 677, 1990.
Cytotoxic IC82=100 ug/ml	<i>Planta Medica</i> , 57: A113, 1991.
Deiodinase-Inhibitor	Jim Duke's personal files.
Diaphoretic?	Lawrence Review of Natural Products, Dec-90.
Differentiator 5.5 uM	
Estrogenic 10% genistein	

Fungicide	
Glucosyl-Transferase-Inhibitor ID50=120 ug/ml	
HIV-RT-Inhibitor IC50=<1 ug/ml	Nakane, H., Fukushima, M., and Ono*, K. Differential Inhibition Of Reverse Transcriptase And Various DNA Polymerases By Digallic Acid And Its Derivatives. <i>Journal of Natural Products</i> , 53(5): 1234-1240, 1990.
Hemostat	Huang, K. C. 1993. <i>The Pharmacology of Chinese Herbs</i> . CRC Press, Boca Raton, FL 388 pp.
Hepatomagenic 5,000 ppm (diet) rat	Phenolic Compounds in Food and Their Effects on Health. <i>Antioxidants &amp; Cancer Prevention</i> . Huang, M.T., Ho, C.T. and Lee, C.Y. eds. 1992. ACS Symposium Series 507.ACS, Washington 402 pp.
Hepatoprotective	
Hypoglycemic 100 mg/kg orl rat	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.
Inotropic	
Insulinogenic	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Juvabional	Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, <i>Herbs, Spices &amp; Medicinal Plants: Recent Advances in Botany, Horticulture, &amp; Pharmacology</i> , v. 4, Oryx Press, Phoenix, 1989, 267pp.
Larvistat 8,000 ppm diet	Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, <i>Herbs, Spices &amp; Medicinal Plants: Recent Advances in Botany, Horticulture, &amp; Pharmacology</i> , v. 4, Oryx Press, Phoenix, 1989, 267pp.
Lipoxygenase-Inhibitor IC11=1.25 mM	Oszmianski, J. and Lee, C.Y. 1990. Inhibitory Effect of Phenolics on Carotene Bleaching in Vegetables. <i>J. Agric. Food Chem.</i> 38: 688-690.
Lipoxygenase-Inhibitor IC50=0.1-5 uM	
MAO-A-Inhibitor	
MMP-9-Inhibitor 20 uM	
Mast-Cell-Stabilizer	
Metal-Chelator (Copper)	Seidel, V., Verholle, M., Malard, Y., Tilleguin, F., Fruchart, J-C., Duriez, P., Bailleul, F., Teissier, E. 2000. Phenylpropanoids from <i>Ballota nigra</i> L. Inhibit in vitro LDL Peroxidation. <i>Phytotherapy Research</i> , 14(2): 93-98.
Metalloproteinase-Inhibitor IC50=>42 uM	
Mutagenic	
NADH-Oxidase-Inhibitor	
NEP-Inhibitor IC50=>42 uM	
NF-kB-Inhibitor	
NO-Inhibitor IC>50=125 uM	
NO-Inhibitor IC50=20 uM	
NO-Synthase-Inhibitor 5-50 uM	
Neuroprotective 5-25 uM	
Ornithine-Decarboxylase-Inhibitor <10 uM	
P450-Inducer 5 uM	Father Nature's Farmacy: The aggregate of all these three-letter citations.
P450-Inhibitor 50-100 uM	Father Nature's Farmacy: The aggregate of all these three-letter citations.
PGE2-Inhibitor	
PTK-Inhibitor 0.4-24 uM	
Pesticide	
Phospholipase-Inhibitor	
Plasmodicide	Neuwinger, H. D. 1996. <i>African Ethnobotany - Poisons and Drugs</i> . Chapman & Hall, New York. 941 pp.
Proliferant	
Prostaglandin-Synthesis-Inhibitor 40 ug/ml	Ibewuiké, J. C., Ogungbamila, F. O., Ogundaini, A. O., Okeke, I. N., Bohlin, L. 1997. Antiinflammatory and Antibacterial Activities of C-methylflavonol from <i>Piliostigma thonningii</i> . <i>Phytotherapy Research</i> , 11(4): 281-284.
Protein-Kinase-C-Inhibitor	Naim, M., Zehavi, U., Nagy, S., and Rouseff, R.L. Hydroxycinnamic Acids as Off-Flavor Precursors in Citrus Fruits and Their Products. <i>Phenolic Compounds in Food and Their Effects on Health</i> , Ch.14.
Quinone-Reductase-Inducer 6 uM	Uda, Y., Price, K. R., Williamson, G., Rhodes, M. J. C. 1997. Induction of the Anticarcinogenic Marker Enzyme, Quinone Reductase, in Murine Hepatoma Cells In Vitro by Flavonoids. <i>Cancer Lett.</i> , 120 (2): 213-216.
Quinone-Reductase-Inducer 13 uM	
TNF-alpha-Inhibitor IC50=3.11 uM	
Teratologic	
Topoisomerase-I-Inhibitor IC50=12.8 ug/ml	
Topoisomerase-I-Inhibitor IC50=42 uM	
Topoisomerase-II-Inhibitor IC50=1-6.9 ug/ml	
Topoisomerase-II-Inhibitor IC50=23-40 uM	
Tumorigenic 0.1% diet orl rat/yr	Jim Duke's personal files.
Tyrosinase-Inhibitor ID50=70 uM	
Tyrosine-Kinase-Inhibitor	<i>Economic &amp; Medicinal Plant Research</i> , 6: 170.
VEGF-Inhibitor	
Vasodilator	
Xanthine-Oxidase-Inhibitor IC50=>0.4 ug/ml	<i>Chem. &amp; Pharm. Bull.</i> 38: 1772.

Xanthine-Oxidase-Inhibitor IC50=10.6 ug/ml

Xanthine-Oxidase-Inhibitor 3.1 uM

cAMP-Phosphodiesterase-Inhibitor

iNOS-Inhibitor IC50=20 uM

Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).

QUERCETIN-3-O-GALACTOSIDE	Plant	--	--		*
RESIN	Plant	30000.0	60000.0	-0.53	*