

# List of All Chemicals

P

Ailanthus altissima (Simaroubaceae)

## Common name(s)

Tree Of Heaven; Stinktree

## 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 |
|---|--|-----|---------|----------|--------|------------|
| 1-(1',2'-DIHYDROXYETHYL)-4-METHOXY-BETA-CARBOLINE | Root Bark  |     | --      | --       |        | *          |
| 1-(2'-HYDROXYETHYL)-4-METHOXY-BETA-CARBOLINE      | Root Bark  |     | --      | --       |        | *          |
| 1-ACETYL-4-METHOXY-BETA-CARBOLINE                 | Root Bark  |     | --      | --       |        | *          |
| 1-HYDROXYCANTHIN-6-ONE                            | Tissue Culture   |     | --      | --       |        | *          |
| 1-METHOXYCANTHIN-6-ONE                            | Wood   |     | --      | --       |        | *          |
| Activities (3)                                    |  |     |         |          |        |            |
| Antibacterial                                     |  |     |         |          |        |            |
| Antitumor   |  |     |         |          |        |            |
| Pesticide   |  |     |         |          |        |            |
| 1-METHOXYCANTHIN-6-ONE-3N-OXIDE                   | Root Bark  |     | --      | --       |        | *          |
| 2,6-DIMETHOXY-P-BENZOQUINONE                      | Bark   |     | --      | --       |        | *          |
| Activities (3)                                    |  |     |         |          |        |            |
| Antibacterial                                     |  |     |         |          |        |            |
| Fungicide   | 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, Phytotherapy Research, 3(4), 1989, 117-125. |     |         |          |        |            |
| Pesticide   |  |     |         |          |        |            |
| 2,6-DIMETHOXYQUINONE                              | Plant  |     | --      | --       |        | *          |
| ACETYLAMAROLIDE                                   | Bark   |     | --      | --       |        | *          |
| AILANTHIIN  | Plant  |     | --      | 49600.0  |        | *          |
| AILANTHINONE                                      | Bark   |     | --      | --       |        | *          |
| Activities (8)                                    |  |     |         |          |        |            |
| Amebicide IC50=0.132 uM                           |  |     |         |          |        |            |
| Antigiardial IC50=45 uM                           |  |     |         |          |        |            |
| Antileukemic                                      | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.   |     |         |          |        |            |
| Antimalarial IC50=0.025 uM                        |  |     |         |          |        |            |
| Antiplasmodial IC50=0.019 uM                      |  |     |         |          |        |            |
| Antitrypanosomic IC50=0.025 uM                    |  |     |         |          |        |            |
| Pesticide   |  |     |         |          |        |            |
| Protisticide IC50=0.019-45 uM                     |  |     |         |          |        |            |
| AILANTHONE  | Fruit  |     | --      | --       |        | *          |

| Activities (8)                  |  |    |    |   |
|---------------------------------|--|----|----|---|
| Amebicide                       | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.   |    |    |   |
| Antibacterial IC17=12.5 ug/ml   |  |    |    |   |
| Antifeedant                     |  |    |    |   |
| Antimalarial                    | 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. |    |    |   |
| Antiplasmodial                  |  |    |    |   |
| Antitubercular IC17=12.5 ug/ml  |  |    |    |   |
| Mycobactericide IC17=12.5 ug/ml |  |    |    |   |
| Pesticide                       |  |    |    |   |
| AMAROLIDE                       | Bark   | -- | -- | * |
| BETA-SITOSTEROL                 | Plant  | -- | -- | * |

| Activities (47)                            |   |  |  |  |
|--|---|--|--|--|
| Androgenic                                 |   |  |  |  |
| Angiogenic                                 |   |  |  |  |
| Anorexic                                   | Martindale's 28th   |  |  |  |
| Antiaidenomic                              | Merck 11th Edition  |  |  |  |
| Antiandrogenic                             | Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 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 Vaccinium myrtillus (Bilberry) Fruits and Cell Cultures. Plant Sci., 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. Journal of Ethnopharmacology, 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. Journal of Ethnopharmacology, 28: 221-234, 1990.   |  |  |  |
| Antigonadotrophic                          | Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.   |  |  |  |
| Antihyperlipoproteinaemic                  | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. 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. Journal of Ethnopharmacology, 28: 221-234, 1990.   |  |  |  |
| Antiprostaglandin 30 mg/day/12 wks         |   |  |  |  |
| Antiprostataidenomic                       | Merck 11th Edition  |  |  |  |
| Antiprostatic 10-20 mg 3 x/day/orl man     |   |  |  |  |
| Antipyretic                                | Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.   |  |  |  |
| Antitumor (Breast)                         | Madhavi, D. L., Bomser, J., Smith, M., Singletary, K. 1998. Isolation of Bioactive Constituents from Vaccinium myrtillus (Bilberry) Fruits and Cell Cultures. Plant Sci., 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 Artemisia annua. Plant Science, 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 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.   |  |  |  |
| 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. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.   |  |  |  |
| Gonadotrophic                              | Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 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. Journal of Ethnopharmacology, 27: 243-275, 1989.                    |  |  |  |
| Hypolipidemic 2-6 g/day                    |   |  |  |  |
| Pesticide                                  |   |  |  |  |
| Spermicide                                 | Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.   |  |  |  |
| Ubiquiot                                   | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.                                    |  |  |  |
| Ulcerogenic 500 mg/kg ipr rat              |   |  |  |  |

| CALCIUM-OXALATE | Plant | -- | -- | * |
|-----------------|-------|----|----|---|
| Activities (4)  |       |    |    |   |
| Emetic          |       |    |    |   |
| Inflammatory    |       |    |    |   |
| Laxative        |       |    |    |   |
| Lithogenic      |       |    |    |   |
| CANTHIN-6-ONE   | Wood  | -- | -- | * |

| Activities (8)                               |   |          |          |      |   |
|--|---|----------|----------|------|---|
| Antibacterial<br>MIC=12.5-75 ug/ml           | Collins, D.J., Culvenor, C.C.J., Lamberton, J.A., Loder, J.W. and Price, J.R., Plants for Medicines, CSIRO, East Melbourne, Australia, 1990, 303 pp.  |          |          |      |   |
| Antileukemic                                 |   |          |          |      |   |
| Antimycotic                                  |   |          |          |      |   |
| Antiseptic                                   | Bettarini, F., Borgonovi, G.E., et al. 1991. Antiparasitic Compounds from East African Plants: Isolation and Biological Activity of Anonaine, Matricarianol, Canthin-6-One and Caryophyllene Oxide. Insect Sci. Applic. 14(1): 93-99, 1993. |          |          |      |   |
| Cytotoxic IC50=1-6 ug/ml                     | Collins, D.J., Culvenor, C.C.J., Lamberton, J.A., Loder, J.W. and Price, J.R., Plants for Medicines, CSIRO, East Melbourne, Australia, 1990, 303 pp.  |          |          |      |   |
| Fungicide                                    |   |          |          |      |   |
| Pesticide                                    |   |          |          |      |   |
| cAMP-Inhibitor                               | Collins, D.J., Culvenor, C.C.J., Lamberton, J.A., Loder, J.W. and Price, J.R., Plants for Medicines, CSIRO, East Melbourne, Australia, 1990, 303 pp.  |          |          |      |   |
| CANTHIN-6-ONE-3-OXIDE                        | Wood  | --       | --       |      | * |
| CARBOLINE-1-CARBOXYLATE                      | Bark  | --       | --       |      | * |
| CELLULOSE                                    | Bark  | --       | --       |      | * |
| Activities (1)                               |   |          |          |      |   |
| Hemostat                                     | Martindale's 29th   |          |          |      |   |
| CERYL-ALCOHOL                                | Plant   | --       | --       |      | * |
| CERYL-PALMITATE                              | Bark  | --       | --       |      | * |
| ELAIDIC-ACID                                 | Plant   | --       | --       |      | * |
| Activities (2)                               |   |          |          |      |   |
| Antiinflammatory IC50=54 uM                  |   |          |          |      |   |
| Antileukotriene-D4 IC50=54 uM                |   |          |          |      |   |
| FAT  | Seed  | 555000.0 | 591000.0 | 1.72 | * |
| FISETIN                                      | Plant   | --       | --       |      | * |
| Activities (15)                              |   |          |          |      |   |
| 5-Lipoxygenase-Inhibitor<br>IC50 (uM)=11     |   |          |          |      |   |
| ACE-Inhibitor IC50=150 uM/                   |   |          |          |      |   |
| Allergenic                                   | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.  |          |          |      |   |
| Antihistaminic                               | 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                                  | Jim Duke's personal files.  |          |          |      |   |
| Antiviral                                    | Economic & Medicinal Plant Research, 5: 197.  |          |          |      |   |
| Cyclooxygenase-Inhibitor<br>IC50 (uM) =80    |   |          |          |      |   |
| 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.  |          |          |      |   |
| Lipoxygenase-Inhibitor IC50 (uM)=11          |   |          |          |      |   |
| Lipoxygenase-Inhibitor                       | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.  |          |          |      |   |
| Oxidase-Inhibitor                            | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.  |          |          |      |   |
| Pesticide                                    |   |          |          |      |   |
| Topoisomerase-I-Inhibitor<br>IC50=20.6 ug/ml |   |          |          |      |   |
| Topoisomerase-II-Inhibitor<br>IC50=8.2 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.                                   |          |          |      |   |
| GALLIC-ACID                                  | Plant   | --       | --       |      | * |
| Activities (62)                              |   |          |          |      |   |
| ACE-Inhibitor<br>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<br>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<br>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.   |
| Antiherpetic<br>EC50=>10 ug/ml        |   |
| Antiinflammatory                      | Kroes, B.H., et al. 1991. Anti-Inflammatory Activity of Gallic Acid. Planta Medica, 58(6): 499.   |
| Antileishmanic<br>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                   |   |
| Antiperiodontitic 10 ug/ml            |   |
| Antiperoxidant<br>IC50=69 uM          |   |
| Antipolio                             | Economic & Medicinal Plant Research, 5: 194.  |
| Antiproteolytic 10 ug/ml              |   |
| Antiradicular 7 x quercetin           |   |
| Antiradicular<br>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<br>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<br>MIC=1,000 ug/ml       |   |
| Gram(-)icide<br>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 |    |    |   |
| HEMICELLULOSE  | Plant   | -- | -- | * |
| HOLOCELLULOSE  | Plant   | -- | -- | * |
| ISOQUERCETIN   | Leaf  | -- | -- | * |
| <div> <div>Activities (3)</div> <div> <div>Antiretroviral</div> <div>Antiviral</div> <div>Pesticide</div> </div> </div>  |   |    |    |   |
| ISOQUERCITRIN  | Leaf  | -- | -- | * |
| <div> <div>Activities (22)</div> <div> <div>ACE-Inhibitor ID50=300 ug/ml rat (24 hr.)</div> <div> <div>Aldose-Reductase-Inhibitor</div> <div>Antibacterial</div> <div>Anticancer</div> <div>Antielastase IC50=0.7 ug/ml</div> <div>Antifeedant</div> <div>Antiinflammatory</div> <div>Antinociceptive</div> <div>Antioxidant 1/4 quercetin</div> <div>Antioxidant IC50=9.0 uM</div> <div>Antiradicular 1/4 quercetin</div> <div>Antitumor</div> <div>Antitumor-Promoter</div> <div>Cancer-Preventive</div> <div>Capillarigenic</div> <div>Diaphoretic</div> <div>Diuretic 10 ppm</div> <div>Hypotensive</div> <div>Insectiphile</div> <div>Pesticide</div> <div>TNF-alpha-Inhibitor</div> <div>Topoisomerase-II-Inhibitor 550 ug/ml</div> </div> <div> <div>Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor &amp; Frost, London. 791 pp.</div> <div>Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor &amp; Frost, London. 791 pp.</div> <div>Russell, G. B., Phytochemical resources for crop protection, N. Z. J. Technol., 2, 1986, 127-134.</div> <div>Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.</div> <div>List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.</div> <div>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.</div> <div>Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor &amp; Frost, London. 791 pp.</div> <div>Bernard, F. X., Sable, S., Cameron, B., Provost, J., Desnottes, J. F., Crouzet, J., Blanche, F. 1997. Glycosylated Flavones as Selective Inhibitors of Topoisomerase IV. Antimicrobial Agents &amp; Chemotherapy, 41: 992-998.</div> </div> </div> </div> |   |    |    |   |
| LIGNIN   | Plant   | -- | -- | * |
| <div> <div>Activities (13)</div> <div> <div>AntiHIV</div> <div>Antibacterial</div> <div>Anticancer</div> <div>Anticoronary</div> <div>Antidiarrheic</div> <div>Antinitrosaminic</div> <div>Antioxidant</div> <div>Antitumor</div> <div>Antiviral</div> <div>Chelator</div> <div>Hypocholesterolemic</div> <div>Laxative</div> <div>Pesticide</div> </div> <div> <div>Martindale's 29th</div> </div> </div>   |   |    |    |   |
| LINUTHIN   | Leaf  | -- | -- | * |
| METHYL-4-METHOXY-BETA-CARBOLINE-1-CARBOXYLATE  | Root Bark   | -- | -- | * |
| MUCILAGE   | Plant   | -- | -- | * |

| Activities (3)                                 |   |          |          |      |   |
|--|---|----------|----------|------|---|
| Cancer-Preventive                              | Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.   |          |          |      |   |
| Demulcent                                      |   |          |          |      |   |
| Hypocholesterolemic                            |   |          |          |      |   |
| NEOQUASSIN                                     | Plant   | --       | --       |      | * |
| OLEORESIN                                      | Plant   | --       | --       |      | * |
| PHLOBAPHENE                                    | Bark  | --       | --       |      | * |
| POLYSACCHARIDE                                 | Bark  | --       | --       |      | * |
| PROTEIN  | Seed  | 275000.0 | 276000.0 | 0.38 | * |
| QUASSIIN                                       | Bark  | --       | 49600.0  |      | * |
| QUASSIN  | Plant   | --       | --       |      | * |
| Activities (5)                                 |   |          |          |      |   |
| Amebicide 100 ppm                              |   |          |          |      |   |
| Apertif  |   |          |          |      |   |
| Emetic   | Oriental Materia Medica (three volumes by Dr. Hsu and collaborators)  |          |          |      |   |
| Insecticide                                    | Grenand, P., Moretti, C., and Jacquemin, H. 1987. Pharmacopees Traditionnelles en Guyane. l'ORSTROM, Paris. 569 pp.   |          |          |      |   |
| Pesticide                                      |   |          |          |      |   |
| QUERCETIN                                      | Leaf  | --       | --       |      | * |
| Activities (176)                               |   |          |          |      |   |
| 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 Bull43(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. Zhongguo Zhongyao Zazhi , 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, Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture, & Pharmacology, v. 4, Oryx Press, Phoenix, 1989, 267pp.                      |          |          |      |   |
| Allergenic                                     | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.  |          |          |      |   |
| Analgesic                                      |   |          |          |      |   |
| AntiCrohn's 400 mg/man/3x/day                  | Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. 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. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).  |          |          |      |   |
| Antiaflatoxin IC50=25 uM                       |   |          |          |      |   |
| Antiaflatoxin IC50=7.5 ppm                     |   |          |          |      |   |
| Antiaggregant IC50=55 uM                       | Economic & Medicinal Plant Research, 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. Phytotherapy Research 4(5): 201, 1990.  |          |          |      |   |
| Antiangiogenic                                 |   |          |          |      |   |
| Antiarthritic                                  |   |          |          |      |   |
| Antiasthmatic IC50=14 uM                       |   |          |          |      |   |
| Antiatherosclerotic                            |   |          |          |      |   |
| Antibacterial                                  | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. 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                                   |   |          |          |      |   |

|                                  |  |
|----------------------------------|--|
| Anticolic 400 mg/man/3x/day      | Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).   |
| Anticomplementary                |  |
| Anticystic 1,000 mg/day/4 weeks  |  |
| Antidepressant                   |  |
| Antidermatitic                   | Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).   |
| Antidiabetic                     |  |
| Antielastase IC50=0.8 ug/ml      |  |
| Antiencephalitic                 | Economic & Medicinal Plant Research, 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, Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture, & Pharmacology, v. 4, Oryx Press, Phoenix, 1989, 267pp. |
| Antifibrosarcomic                |  |
| Antiflu                          | Vlietinck, A.J. and Dommissie, R.A. eds. 1985. Advances in Medicinal Plant Research. Wiss. Verlag. Stuttgart.  |
| Antigastric                      | Rastitel'nye Resursy, 21: 85.  |
| Antigonadotropic                 | Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. 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. Planta Medica 56(2): 171-173, 1990.    |
| Antiherpetic 48-150 ug/ml        |  |
| Antihistaminic IC50=<10 uM       |  |
| Antihydrophobic                  | Vlietinck, A.J. and Dommissie, R.A. eds. 1985. Advances in Medicinal Plant Research. Wiss. Verlag. Stuttgart.  |
| Antihypertensive                 | Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.  |
| Antiinflammatory 20-150 mg/kg    | Fitoterapia No.5-1990.   |
| Antileishmanic IC50=64           |  |
| Antileukemic IC50=10 uM          | Economic & Medicinal Plant Research, 5: 225.   |
| Antileukemic IC50=>10 ug/ml      | Life Sciences 55: 1061.  |
| Antileukemic 5.5-60 uM           |  |
| Antileukotriene                  | Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).   |
| Antilipoperoxidant IC67=50       |  |
| Antimalarial IC50=1-6.4 ug/ml    | Medicinal and Poisonous Plants of the Tropics. 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 Ballota nigra L. Inhibit in vitro LDL Peroxidation. Phytotherapy Research, 14(2): 93-98.           |
| Antioxidant 4.7 x Vit. E         |  |
| Antioxidant IC47=10 uM           |  |
| Antipancreatic                   | Joseph, J., Nadeau, D. and Underwood, A. 2001. The Color Code. Hyperion, NY.   |
| Antiperiodontal                  | Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).   |
| Antiperistaltic                  |  |
| Antipermeability                 |  |
| Antiperoxidant                   | Planta Medica, 57: A110, 1991.   |
| Antipharyngitic                  | Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).   |
| Antiplaque                       | Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).   |
| Antiplasmodial IC50=13-64        |  |
| Antipodriac                      |  |
| Antipolio                        | Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).   |
| Antiproliferant 10 nM            |  |
| Antiprostanoid                   |  |
| Antiprostatic                    | 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 IC50=4.6 uM        | Planta Medica, 56(6): 695, 1990.   |
| Antispasmodic                    |  |
| Antistreptococcic ID50=120 ug/ml |  |



|   |  |
|---|--|
| Antithiamin                                   | Phenolic Compounds in Food and Their Effects on Health, 69.  |
| Antithrombic                                  |  |
| Antitrypanosomic<br>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. A Textbook of Natural Medicine. 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. J. of Natural Products 55(12):1732-1740, 1992. |
| Apoptotic 20-60 uM                            |  |
| Bacteristat 10 mg/ml                          |  |
| Bradycardiac                                  | Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.  |
| COMT-Inhibitor                                |  |
| COX-2-Inhibitor <40 uM                        |  |
| Calmodulin-Antagonist                         | 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.  |
| Candidicide                                   |  |
| Capillari-protective                          | Merck 11th Edition   |
| Carcinogenic 40,000 ppm (diet) mus            | Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. 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 Progression and Growth of Human Gastric Cancer Cells. Planta Medica, 56(6): 677, 1990.  |
| Cytotoxic IC82=100 ug/ml                      | Planta Medica, 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. Journal of Natural Products, 53(5): 1234-1240, 1990.                                    |
| Hemostat                                      | Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.  |
| Hepatoma-genic 5,000 ppm (diet) rat           | 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.  |
| 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. Journal of Ethnopharmacology, 27: 243-275, 1989.   |
| Inotropic                                     |  |
| Insulinogenic                                 | Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. 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, Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture, & Pharmacology, v. 4, Oryx Press, Phoenix, 1989, 267pp.         |
| Larvostat 8,000 ppm diet                      | Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture, & Pharmacology, 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. J. Agric. Food Chem. 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 Ballota nigra L. Inhibit in vitro LDL Peroxidation. Phytotherapy Research, 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. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.   |
| Proliferant                                 |   |
| Prostaglandin-Synthesis-Inhibitor 40 ug/ml  | Ibewuike, 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                   | Economic & Medicinal Plant Research, 6: 170.  |
| VEGF-Inhibitor                              |   |
| Vasodilator                                 |   |
| Xanthine-Oxidase-Inhibitor IC50=>0.4 ug/ml  | Chem. & Pharm. Bull. 38: 1772.  |
| Xanthine-Oxidase-Inhibitor IC50=10.6 ug/ml  |   |
| Xanthine-Oxidase-Inhibitor 3.1 uM           |   |
| cAMP-Phosphodiesterase-Inhibitor            | Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).  |
| iNOS-Inhibitor IC50=20 uM                   |   |

|            |       |    |    |   |
|------------|-------|----|----|---|
| RHAMNOSE   | Plant | -- | -- | * |
| SAPONIN    | Bark  | -- | -- | * |
| SCOPOLETIN | Plant | -- | -- | * |

| Activities (44)                               |   |    |          |      |   |
|---|---|----|----------|------|---|
| Aldose-Reductase-Inhibitor IC50=6.2 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 Bull43(8):1385-1387 |    |          |      |   |
| Allelochemic IC89=2 mM                        | Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture, & Pharmacology, v. 4, Oryx Press, Phoenix, 1989, 267pp.                      |    |          |      |   |
| Analgesic                                     |   |    |          |      |   |
| Anesthetic                                    | Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.   |    |          |      |   |
| Antiadrenergic                                | Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.   |    |          |      |   |
| Antiaflatoxin IC50=65 uM                      |   |    |          |      |   |
| Antiaflatoxin 11.4 ppm                        |   |    |          |      |   |
| Antiarrhythmic                                |   |    |          |      |   |
| Antiasthmatic                                 |   |    |          |      |   |
| Antibacterial                                 | Jeffery B., Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.   |    |          |      |   |
| Antibronchoconstrictor                        |   |    |          |      |   |
| Anticholinergic                               |   |    |          |      |   |
| Antiedemic                                    |   |    |          |      |   |
| Antifeedant                                   | Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.  |    |          |      |   |
| Antihepatotoxic                               | Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.   |    |          |      |   |
| Antiinflammatory ED 1-10 ug/ear               |   |    |          |      |   |
| Antileukotrienogenic                          |   |    |          |      |   |
| Antimutagenic                                 | Mills, Simon and Bone, Kerry. 2000. Phytotherapy. Churchill Livinston, Edinburgh.   |    |          |      |   |
| Antioxidant                                   |   |    |          |      |   |
| Antiproliferant                               |   |    |          |      |   |
| Antiprostaglandin                             |   |    |          |      |   |
| Antiseptic                                    |   |    |          |      |   |
| Antispasmodic                                 |   |    |          |      |   |
| Antitumor 2.9 ug/ml                           |   |    |          |      |   |
| Apoptotic                                     |   |    |          |      |   |
| Bronchorelaxant                               | Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.   |    |          |      |   |
| CNS-Depressant                                | Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.   |    |          |      |   |
| CNS-Stimulant                                 | Watt, J.M. and Breyer-Brandwijk, M.G. 1962. The Medicinal and Poisonous Plants of Southern and Eastern Africa. E. & S. Livingstone, Ltd. Edinburg & London. 1457 pp.  |    |          |      |   |
| Cancer-Preventive                             | Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.   |    |          |      |   |
| 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.   |    |          |      |   |
| Cytotoxic                                     |   |    |          |      |   |
| Fungicide 2 mM                                |   |    |          |      |   |
| Hepatoprotective                              | Wichtl, M. 1984. Teedrogen. Ein Handbuch fur Apotheker und Arzte. Wissenschaftliche Verlagsgesellschaft. mbH Stuttgart. 393 pp.   |    |          |      |   |
| Herbicide                                     | Jeffery B., Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.   |    |          |      |   |
| Hypoglycemic                                  | Economic & Medicinal Plant Research, 6: 165   |    |          |      |   |
| Hypotensive                                   |   |    |          |      |   |
| MAO-Inhibitor                                 |   |    |          |      |   |
| Musculotropic                                 | Wichtl, M. 1984. Teedrogen. Ein Handbuch fur Apotheker und Arzte. Wissenschaftliche Verlagsgesellschaft. mbH Stuttgart. 393 pp.   |    |          |      |   |
| Myorelaxant                                   |   |    |          |      |   |
| Pesticide                                     |   |    |          |      |   |
| Phytoalexin                                   |   |    |          |      |   |
| Phytohormonal                                 | Jeffery B., Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.   |    |          |      |   |
| Uterosedative                                 | 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.  |    |          |      |   |
| SHINJULACTONE-C                               | Root Bark   | -- | 10.0     |      | * |
| TANNIN  | Leaf  | -- | 120000.0 | 0.12 | * |

**Activities (35)**

Anthelmintic

AntiHIV

Antibacterial

Anticancer

Anticariogenic

Antidiarrheic

Antidysenteric

Antihepatotoxic

Antihypertensive

Antilipolytic

Antimutagenic

Antinephritic

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.

Antiphidic

Economic & Medicinal Plant Research, 5: 363.

Antioxidant  
IC50=1.44 ug/ml

Antioxidant 1/3  
quercetin

Antiradicular 500  
mg/kg/day orl mus

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.

Antiradicular 1/3  
quercetin

Antirenitic

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.

Antitumor

Antitumor-Promoter

Antiulcer

Antiviral

Cancer-Preventive

HerbalGram No. 22 - Spring 1990, page 14.

Carcinogenic

Chelator

Cyclooxygenase-  
Inhibitor

Glucosyl-  
Transferase-Inhibitor

Hepatoprotective

Immunosuppressant

Lipoxygenase-  
Inhibitor

MAO-Inhibitor

Ornithine-  
Decarboxylase-  
Inhibitor

Pesticide

Psychotropic

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.

Xanthine-Oxidase-  
Inhibitor