

Biological Activities for Extracts of Manacá (*Brunfelsia grandiflora*)

Plant Part – Origin	Activity Tested for	Type Extract	Test Model	Dosage	Result	Notes/Organism Tested	Ref #
Root Not stated	Toxicity(general)	Not stated	Not stated	Not stated	Active	Large doses can cause excessive salivation, vertigo, general anesthesia, partial paralysis of the face, swollen tongue and turbid vision.	ZZ1049
Twig Peru	Antimutagenic Activity	MeCl2 Ext	Agar Plate	600.0 mcg	Active	<i>Salmonella typhimurium</i> TA98 vs. 2-amino-anthracene-induced mutation. Metabolic activation was required for activity.	T15281
Root Brazil	CNS Depressant Activity	MeOH Ext CHCl3 Ext	IP Male Rat IP Rat	100.0 mg/kg 100.0 mg/kg	Active Strong Activity		L01999
Rootbark Peru	Convulsant Activity	H2O Ext	Not Stated Mouse	Not Stated	Active		H00026
Leaf Brazil	Analgesic Activity	Infusion	IG Mouse	1.0 g/kg	Active	vs. acetic acid-induced writhing.	J12450
Leaf Brazil	Anti-inflammatory Activity	Infusion	IG Mouse	1.0 g/kg	Active	Dye diffusion assay.	J12450
Root Brazil	Anti-inflammatory Activity	CHCl3 Ext	Oral Rat	100.0 mg/kg	Active		T01415
Root Brazil	Anti-inflammatory Activity	CHCl3 Ext	Oral Male Rat	100.0 mg/kg	Active	vs.carrageenin-induced pedal edema.	L01999
Not Stated	Anti-inflammatory Activity	Not stated	Not stated	Not stated	Active		AY1001
Root Brazil	Antipyretic Activity	MeOH Ext	IP Rat	100.0 mg/kg	Active		L01999
Rootbark Peru	Antipyretic Activity	CHCl3 Ext	Not Stated Mouse	Not Stated	Active		H00026
Root Brazil	Cytotoxic Activity	CHCl3 Ext	Cell Culture	2.0 mg/ml	Active	SV-3-T-S cells.	T01415
Leaf + Root Not Stated	Insecticide Activity	H2O Ext	Not Stated	Variable	Inactive	<i>Blatella germanica</i> .	W03405
Leaf + Root Not Stated	Insecticide Activity	H2O Ext	IV Not Stated	40.0 ml/kg	Weak Activity	<i>Periplaneta americana</i> .	W03405

Biological Activities for Compounds of Manacá (*Brunfelsia grandiflora*)

Compound	Activity Tested for	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Manacine	Toxicity(general)	Animals	Not stated	Active	Induces strong muscular tremors, cramps, lowered temperature and death due to respiratory paralysis.	ZZ1049
Scopoletin	Monoamine oxidase Inhibitor	in vitro	Not stated	Active		AY1023
Scopoletin	Blood Thinning Effect	Oral Chick	60 mcg/kg	Active	Increased bleeding time.	AY1028
Beta-eudesmol	Antiepileptic Activity	Cell Culture	Not stated	Active	Antagonized organophosphate-induced lethal toxicity by reversing neuromuscular failure and reducing the occurrence of convulsion.	AY1007
Beta-eudesmol	Antiepileptic Activity	Mice	Not stated	Active Inactive Active	Prevented convulsions and lethality induced by maximal electroshock. Did not prevent convulsions induced by pentylenetetrazol or picrotoxin. In combination with phenytoin it showed an additive effect in preventing electroshock seizures.	AY1007
Beta-eudesmol	Anticonvulsant Activity	IP Mice	300 mg/kg	Active	Alleviated diisopropylfluorophosphate-induced muscle fasciculation, tremor and convulsion and prolonged the time to death.	AY1008
Total Alkaloids	CNS Depressant Activity	IP Rat	Not stated	Active		T01415
Beta-eudesmol	Nerve growth Factor Activity	Cell Culture	100 microM 150 microM	Active Active	Induced neurite extension in rat pheochromocytoma cells,	AY1005
Beta-eudesmol	Muscle Contraction Inhibition	Mouse	100-200 microM	Active	Blockage of nerve-evoked contraction due to blockade of nicotinic Ach receptor channels at the neuromuscular junction.	AY1010
Linalool	Antispasmodic Activity	Mice	100 mg/kg	Active	Inhibited spontaneous locomotor activity.	AY1018
Scopoletin	Antispasmodic Activity	Cell Culture (rat aortic rings)	26-250 microM	Active	Inhibited contractions induced by phenylephrine, potassium chloride, serotonin and PGF2a. Spasmolytic ability in part due to its ability to inhibit intracellular calcium mobilization from the noradrenalin-sensitive stores.	AY1031
Scopoletin	Antispasmodic Activity	Cell Culture (guinea-pig ileum)	Not stated	Active	Inhibited several agonists.	AY1031

Compound	Activity Tested for	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Beta-eudesmol	Intracellular calcium Production	Cell Culture	100 microM 150 microM	Active Active	Increased intracellular calcium in rat pheochromocytoma cells.	AY1005
Beta-eudesmol	Nicotinic Acetylcholine Receptor Inhibition	Cell Culture	20 microM	Active	Effective in both open and closed conformations.	AY1009
Linalool	Analgesic Activity	Mice	Not stated	Active	Hot plate method.	AY1018
Linalool	Antinociceptive Activity	Mice	Not stated	Active	Effect through activation of opioidergic and cholinergic systems.	AY1018
Linalool	Anti-inflammatory Activity	Mice	25 mg/kg 75 mg/kg	Active Active	Vs. acid-induced writhing.	AY1018
Scopoletin	Anti-inflammatory Activity	Mice	1 mg	Active	TPA-mouse ear model. 59.8% inhibition.	AY1022
Scopolin	Anti-inflammatory Activity	Cell Culture	Not stated	Active	Inhibited eicosanoid-release from ionophore-stimulated mouse peritoneal macrophages.	AY1027
Beta-eudesmol	Nitric oxide Inhibition	Cell Culture	Not stated	Active	Inhibited nitric oxide production in LPS-activated macrophages.	AY1006
Scopoletin	Nitric oxide Inhibition	Cell Culture	Not stated	Active	Inhibited nitric oxide synthase induced by interferon-gamma and LPS.	AY1024
Scopoletin	Nitric oxide Inhibition	Cell Culture	Not stated	Active	Inhibited nitric oxide synthesis.	AY1032
Elemol	Anti-ulcer Activity	Not stated	Not stated	Active	Vs. Ulcer-induced by HCl/ethanol, HCl/aspirin, water-immersion stress and pylorus-ligation.	AY1004
Beta-eudesmol	Antihepatotoxic Activity	Cell Culture	Not stated	Active	Demonstrated liver-protective effects against carbon tetrachloride- and galactosamine-induced cytotoxicity.	AY1011
Scopoletin	Hepatoprotective Activity	Cell Culture	1-50 microM	Active	Reduced carbon tetrachloride-induced release of glutamic pyruvic transaminase and sorbitol dehydrogenase and preserved glutathione content by 50%; increased activity of superoxide dismutase by 36%.	AY1025
Farnesol	Cytochrome P450 Enzyme Inhibition	Cell Culture	Not stated	Active	Reversible inhibition.	AY1016
Farnesol	Chemopreventative Activity	Oral Rat	1.5%	Active	Inhibited colonic aberrant crypt foci by 34% and reduced crypt multiplicity by about 44%.	AY1013

Compound	Activity Tested for	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Geraniol	Antiproliferative Activity	Cell Culture	400 microM	Active	Sensitizes colonic cancer cells to 5-FU treatment by increasing the cytotoxicity of the drug.	AY1017
Scopoletin	Antiproliferative Activity	Cell Culture	IC50=157 mg/L IC50=154 mg/L IC50=294 mg/L	Active Active Active	PC3 cells. PAA cells Hela Cells.	AY1021
Farnesol	Cytotoxic Activity	Cell Culture	Not stated	Active	Human BxPC3 Pancreatic Cancer Cells. Apoptosis increased and greater Bak expression.	AY1012
Geraniol	Cytotoxic Activity	Cell Culture	Not stated	Active	Human BxPC3 Pancreatic Cancer Cells. Apoptosis increased and greater Bak expression.	AY1012
Farnesol	Cytotoxic Activity	Oral Hamster	1 %(w/w)	Active	Pancreatic carcinoma incidence was reduced.	AY1012
Scopoletin	Cytotoxic Activity	Cell Culture	Not stated	Active	PC3 cell proliferation.	AY1019
Scopoletin	Cytotoxic Activity	Cell Culture	100 mg/L 200 mg/L 400 mg/L	Weak Activity Active Active	Apoptosis rate at 0.3%. Apoptosis rate at 2.1%. Apoptosis rate at 35%.	AY1021
Esculetin	Cytotoxic Activity	Cell Culture	100 microM	Active	Leukemia HL-60 cells; cell growth and cell cycle inhibited.	AY1030
Farnesol	HMG-CoA Reductase Inhibitor	Cell Culture	Not stated	Active		AY1013
Farnesol	Hypocholesterolemic Activity	Oral Rat	1.5%	Inactive	No significant effect on serum HDL or total cholesterol levels.	AY1013
Scopoletin	Hypocholesterolemic Activity	Oral Chick	0.5-38.2%	Inactive Active	Increased serum total and free cholesterol and serum phospholipid levels. Decreased serum esterified cholesterol fraction.	AY1028
Farnesol	Antifungal Activity	Cell Culture	3 microM 30 microM 300 microM	Active Active Active	Inhibited filamentation of <i>Candida albicans</i> . Inhibited filamentation of <i>Candida albicans</i> . Completely inhibited biofilm formation of <i>Candida albicans</i> .	AY1014
Farnesol	Antibacterial Activity	Cell Culture	MIC=100 mcg/ml	Active	Production of superantigenic exotoxins by <i>S. aureus</i> was about 10 times lower than control.	AY1015
Scopoletin	Antibacterial Activity	Agar Plate	Not stated	Active Active Active Inactive	<i>Bacillus subtilis</i> <i>Aspergillus niger</i> <i>Cladosporium cladosporioides</i> <i>Escherichia coli</i>	AY1020

Compound	Activity Tested for	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Scopoletin	Antibacterial Activity	Agar Plate	MIC=200-1000 mcg/ml	Active	<i>Staphylococcus aureus</i> <i>Streptococcus pneumoniae</i> <i>beta-hemolytic Streptococcus 1451</i> <i>Escherichia coli</i> <i>Klebsiella pneumoniae</i> <i>Proteus mirabilis</i> <i>Pseudomonas aeruginosa</i> <i>Haemophilus influenzae</i>	AY1026

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