

Biological Activities for Extracts of Vassourinha (*Scoparia dulcis*)

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Entire Plant India	Toxicity Assessment (quantitative)	ETOH-H2O (1:1) Ext	IP Mice	LD50 = 1.0 gm/kg	Active		W00374
Entire Plant Brazil	Toxic Effect (general)	ETOH (95%) Ext ETOH (95%) Ext H2O Ext H2O Ext	Intragastric Mice Intragastric Rat Intragastric Mice Intragastric Rat	2.0 gm/kg 2.0 gm/kg 2.0 gm/kg 2.0 gm/kg	Inactive Inactive Inactive Inactive		K26071
Entire Plant China	Toxic Effect (general)	ETOH (100%) Ext	IP Rat	0.1 gm/kg	Active	Death within 6 hours.	K26821
Root Brazil	Uterine Stimulant Effect	H2O Ext	Rat Female	Not stated	Equiv		A03531
Aerial Parts Japan	Cytotoxic Activity	MEOH Ext	Cell Culture	50.0 mcg/ml	Active	Ca-9kb (66% Inhibition.)	K27314
Aerial Parts Japan	Antitumor Activity	Fraction: Scopadulcic Acid B	Cell Culture IP Mice	Not stated	Active	Inhibited effects of tumor promoter.	AE1019
Aerial Parts Japan	Antitumor Activity	Fraction: Scopadulcic Acid B	Cell Culture	Not stated	Active	Inhibited phospholipid synthesis.	AE1019
Aerial Parts Japan	Antitumor Activity	Fraction: Scopadulcic Acid B	Mice	Not stated	Active	Inhibited induced skin tumors.	AE1019
Entire Plant USA	Antitumor Activity	Fraction: Scopadulcic Acid B	Cell Culture	Not stated	Active	Various human cancer cell lines.	AE1001
Entire Plant China	Spasmogenic Activity	ETOH (95%) Ext	Rat	183.0 mcg/ml	Active	Tyramine antagonized effect.	K26821
Entire Plant China	Spasmolytic Activity	ETOH (95%) Ext	Guinea Pig	ED50= 0.74 mg/ml	Active	vs. histamine-induced contractions.	K26821
Entire Plant India	Antispasmodic Activity	ETOH-H2O (1:1) Ext	Guinea Pig	Not stated	Active	vs. ACH- and histamine-induced spasms.	W00374

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Entire Plant Nigeria	Anticonvulsant Activity	ETOH (70%) Ext	IP Mouse	Dose variable	Inactive	vs. metrazole- and strychnine-induced convulsions.	T06510
Entire Plant India	Anticonvulsant Activity	ETOH-H2O (1:1) Ext	IP Mouse	0.5 mg/kg	Inactive	vs. electroshock-induced convulsions.	W00374
Part Not Specified Japan	Smooth Muscle Relaxant Activity	ETOAC Ext H2O Ext Butanol Ext	Rabbit (aorta)	3.0 mcg/ml 3.0 mcg/ml 3.0 mcg/ml	Equiv	vs. KCL- & norepinephrine -induced contractions.	J19977
Entire Plant Bangladesh	Analgesic Activity	Fraction: Scoparinol	Animal (in vivo)	Not stated	Active		L15592
Entire Plant India	Analgesic Activity	ETOH-H2O (1:1) Ext	IP Mouse	0.5 mg/kg	Inactive	vs. tail pressure method.	W00374
Entire Plant Brazil	Analgesic Activity	ETOH (95%) Ext H2O Ext	Intragastric mice Intragastric mice	1.0 gm/kg 1.0 gm/kg	Inactive Inactive	vs. tail flick response to radiant heat.	K26071
Entire Plant Brazil	Analgesic Activity	H2O Ext	Intragastric mice	1.0 gm/kg	Active	vs. acetic acid-induced writhing.	K26071
Entire Plant Brazil	Antiinflammatory Activity	ETOH (95%) Ext	Intragastric Rat	1.0 gm/kg	Inactive	vs. cotton pellet granuloma.	K26071
Entire Plant Brazil	Antiinflammatory Activity	ETOH (95%) Ext	Intragastric Rat	0.5 gm/kg	Active	vs. dextran-induced pedal edema.	K26071
Entire Plant Brazil	Antiinflammatory Activity	ETOH (95%) Ext	Intragastric Rat	1.0 gm/kg	Active	vs. carrageenan-histamine-, and dextran-induced pedal edema.	K26071
Entire Plant Brazil	Antiinflammatory Activity	H2O Ext	Intragastric Rat	0.5 gm/kg	Active	vs. carrageenan-induced pedal edema.	K26071
Entire Plant Bangladesh	Antiinflammatory Activity	Fraction: Scoparinol	Animal (in vivo)	Not stated	Active		L15592
Entire Plant India	Antiinflammatory Activity	ETOH-H2O (1:1) Ext	Oral Rat	0.5 mg/kg	Inactive	vs. carrageenin-induced pedal edema.	W00374
Entire Plant Brazil	Hypertensive Activity	H2O Ext	IV Rat	0.1 mg/kg	Active		K26071

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Entire Plant Brazil	Hypotensive Activity	CHCL3 Ext	IV Rat	Not stated	Active		K26071
Entire Plant China	Hypertensive Activity	ETOH (95%) Ext	IV Dog IV Rat	0.5 mg/kg 0.5 mg/kg	Active Active	Prazosin antogonized effect.	K26821
Entire Plant China	Inotropic Effect Positive	ETOH (95%) Ext	Rat	25.0 mcg/ml	Active	Atrium	K26821
Entire Plant India	Diuretic Activity Hypoglycemic Activity Hypothermic Activity Semen Coagulation Spermicidal Effect	ETOH-H2O (1:1) Ext	IP Rat Oral Rat IP Mouse IP Mouse Oral Rat	0.25 Mg/kg 250.0 Mg/kg 0.5 Mg/kg 2.0% / animal Not stated	Inactive Inactive Inactive Inactive Inactive		W00374
Aerial Parts Japan	Antiviral Activity	Fraction: Scopadulcic Acid B	Cell Culture	Not stated	Active	<i>Herpes simplex virus type 1</i>	AE1020
Entire Plant USA	Antiviral Activity	Fraction: Scopadulcic Acid B	Cell Culture	Not stated	Active	<i>Herpes simplex virus type 1</i>	AE1001
Leaf India	Antifungal Activity	H2O Ext	Agar Plate	1:1 / plate	Active	<i>Fusarium oxysporum</i> <i>F. sp.lentis</i>	K18143
Entire Plant India	Antifungal Activity	ETOH-H2O (1:1) Ext	Agar Plate	25.0 mcg/ml	Inactive	<i>Microsporum canis</i> <i>Aspergillus niger</i> <i>Trichophyton mentagrophytes</i>	W00374
Entire Plant Nigeria	Antifungal Activity	ETOH (95%) Ext	Agar Plate	1.25 mg/ml 25.0 mg/ml	Inactive Inactive	<i>Periconia species</i> <i>Candida albicans</i>	L16218
Entire Plant India	Antiyeast Activity	ETOH-H2O (1:1) Ext	Agar Plate	25.0 mcg/ml	Inactive	<i>Candida albicans</i> <i>Cryptococcus neoformans</i>	W00374
Entire Plant Bangladesh	Antibacterial Activity	CHCL3 Ext	Agar Plate	Not stated	Active Active Active Active Active	<i>Klebsiella pneumoniae</i> <i>Proteus mirabilis</i> <i>Pseudomonas aeruginosa</i> <i>Staphylococcus aureus</i> <i>Staphylococcus pyogenes</i>	L16228

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Entire Plant Bangladesh	Antibacterial Activity	H2O Soluble Fraction	Agar Plate	Not stated	Active Active Active Active Active	<i>Klebsiella pneumoniae</i> <i>Proteus mirabilis</i> <i>Pseudomonas aeruginosa</i> <i>Staphylococcus aureus</i> <i>Staphylococcus pyogenes</i>	L16228
Entire Plant Bangladesh	Antibacterial Activity	MEOH Ext	Agar Plate	Not stated	Active Active Active	<i>Klebsiella pneumoniae</i> <i>Proteus mirabilis</i> <i>Staphylococcus pyogenes</i>	L16228
Entire Plant Nigeria	Antibacterial Activity	ETOH (95%) Ext ETOH (95%) Ext	Agar Plate Agar Plate	25.0 mg/ml 39.0 mcg/ml	Inactive Active	<i>Pseudomonas aeruginosa</i> <i>Bacillus subtilis</i>	L16218
Entire Plant Senegal	Antibacterial Activity	MEOH Ext	Agar Plate	10.0 mg/ml 10.0 mg/ml 15.0 mg/ml	Active Inactive Active	several gram - organisms several gram + organisms <i>Sarcina lutea</i>	T09739
Entire Plant India	Antibacterial Activity	ETOH-H2O (1:1) Ext	Agar Plate	25.0 mcg/ml	Inactive	<i>Bacillus subtilis</i> <i>Escherichia coli</i> <i>Salmonella typhosa</i> <i>Staphylococcus aureus</i> <i>Agrobacterium tumefaciens</i>	W00374
Entire Plant Bangladesh	Diuretic Effect	Fraction: Scoparinol	Animal (in vivo)	Not stated	Active		L15592
Entire Plant Bangladesh	Barbiturate Potentiation	Fraction: Scoparinol	Animal (in vivo)	Not stated	Active	Potentiated pentobarbital-induced sedation (p<0.05)	L15592
Entire Plant Brazil	Barbiturate Potentiation	ETOH (95%) Ext ETOH (95%) Ext H2O Ext H2O Ext	Intragastric Mice Intragastric Rat Intragastric Mice Intragastric Rat	Dose 1.0 gm/kg Dose 2.0 gm/kg Dose 1.0 gm/kg Dose 2.0 gm/kg	Active Inactive Active Inactive		K26071
Entire Plant Brazil	Spontaneous Activity Reduction	ETOH (95%) Ext ETOH(95%)Ext H2O Ext H2O Ext	IP Rat IP Rat IP Mouse IP Rat	2.0 gm/kg 2.0 gm/kg 2.0 gm/kg 2.0 gm/kg	Inactive Inactive Inactive Inactive		K26071
Entire Plant Brazil	Antipyretic Activity	ETOH (95%) Ext	Intragastric Rat	Dose 2.0 gm/kg	Inactive	vs. yeast-induced pyrexia.	K26071

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Entire Plant Colombia	Antivenin Effect	ETOH (95%) Ext	Not stated	Not stated	Inactive	vs. <i>Bothrops atrox</i> venom.	L15991
Entire Plant India	Antihyperglycemic Activity	Not stated	Oral Human Adult	Not stated	Inactive	Two cases of diabetes were studied.	A14287
Entire Plant Nigeria	Anticrustacean Activity	ETOH (95%) Ext	Not stated	LD50 >1000 ppm	Inactive	<i>Artemia salina</i>	L16218
Entire Plant Surinam	Binding Effect	ETOH (80%) Ext	Human Adult	10.0 mcg/ml	Active	Inhibited radioligand binding to dopamine receptor in human frontal cortex.	J12451
Entire Plant Surinam	Binding Effect	ETOH (80%) Ext	Human Adult	10.0 mcg/ml	Equiv	Inhibited radioligand binding to adrenergic-receptor in human frontal cortex.	J12451
Entire Plant Surinam	Binding Effect	ETOH (80%) Ext	Human Adult	10.0 mcg/ml	Weak Activity	Inhibited radioligand binding to muscarinic receptor in human hippocampus tissues.	J12451
Entire Plant Surinam	Binding Effect	ETOH (80%) Ext	Human Adult	100.0 mcg/ml	Active	Inhibited radioligand binding to serotonin receptor in human frontal cortex.	J12451
Entire Plant Surinam	Binding Effect	ETOH (80%) Ext	Rat	10.0 mcg/ml	Active	Inhibited radioligand binding to adenosine NMDR receptor channel complex.	J12451
Entire Plant Surinam	Binding Effect	ETOH (80%) Ext	Rat (Lung)	10.0 mcg/ml	Inactive	Inhibited radioligand binding to beta-2-adrenergic receptor.	J12451
Entire Plant Surinam	Serotonin (5-ht) Receptor Binding Activity	CHCL3 Ext	Calf (Hippocampus)	100.0 mcg/ml	Active	Inhibited the binding of 3h-rauwolscine to serotonin receptors.	J10986
Entire Plant Taiwan	Glutamate-pyruvate-transaminase Inhibition	ETOH-H2O (1:1) Ext	Cell Culture Rat liver cells	1.0 mg/ml	Inactive	vs. CCL-induced hepatotoxicity.	T14999

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Entire Plant Taiwan	Glutamate-pyruvate-transaminase Inhibition	ETOH-H2O (1:1) Ext	Cell Culture Rat liver cells	1.0 mg/ml	Inactive	vs. PGE-1-induced pedal edema.	T14999
Entire Plant Brazil	Insecticide Activity	ETOH (95%) Ext	Not stated	50.0 mcg	Inactive	<i>Rhodnius neglectus</i>	K18765
Entire Plant USA	Insecticide Activity	Plant	Not stated	Not stated	Inactive		A04807
Entire Plant USA	Antimalarial Activity	Fraction: Scopadulcic Acid A	In vitro	IC50=27mM IC50=19mM IC50=23mM	Active Active Active	D6 <i>P. falciparum</i> W2 <i>P. falciparum</i> MDR <i>P. falciparum</i>	AE1001
Part Not Specified Japan	H(+),K(+)-ATPase Inhibitor Activity	Fraction: Scopadulcic Acid B	Rabbit	Not stated	Active	Stabilized the K(+) form of the enzyme.	AE1018
Entire Plant USA	H(+), K(+)-ATPase Inhibitor Activity	Fraction: Scopadulcic Acid B	Cell culture	Not stated	Active	vs. proton pumps.	AE1001
Dried Stembark Brazil	Molluscicidal Activity	ETOH (95%) Ext H2O Ext	Not stated	1000 ppm	Weak Activity	<i>Biomphalaria glabrata</i> <i>Biomphalaria straminea</i>	W02949

Biological Activities for Compounds found in Vassourinha (*Scoparia dulcis*)

Compound Tested	Activity Tested For	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Betulinic Acid	Cytotoxic Activity	Cell Culture	Not stated	Active Active	Medulloblastoma Glioblastoma	AE1024
Betulinic Acid	Cytotoxic Activity	Cell Culture	IC50=175	Active	Leukemia L1210 cells	AE1025
Betulinic Acid	Cytotoxic Activity	Cell Culture	Not stated	Active	Acts directly on mitochondria to induce cell apoptosis	AE1005
Betulinic Acid	Cytotoxic Activity	Cell Culture	Not stated	Active	Inhibited fibroblast growth of endothelial cells	AE1007
Betulinic Acid	Cytotoxic Activity	Cell Culture	10 mcg/ml	Active	Human Melanoma	AE1008
Betulinic Acid	Cytotoxic Activity	Cell Culture	Not stated	Active	Melanoma Neuroectodermal tumor Malignant brain tumor	AE1010

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Compound Tested	Activity Tested For	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Betulinic Acid	Cytotoxic Activity	Cell Culture	3 mM	Active	Melanocytic Naevi	AE1012
Betulinic Acid	Cytotoxic Activity	Cell Culture	Not stated	Active	Melanoma	AE1012
Betulinic Acid	Cytotoxic Activity	Cell Culture	Not stated	Active	Neuroblastoma Medulloblastoma, Glioblastoma Ewing's sarcoma	AE1015
Betulinic Acid	Cytotoxic Activity	Cell Culture	Not stated	Active	Neuroblastoma cells (doxorubicin-resistant)	AE1015
Betulinic Acid	Cytotoxic Activity	Human Adult	Not stated	Active	Neuroectodermal tumor cells	AE1015
Betulinic Acid	Antitumor Activity	Mice	Not stated	Active	Inhibits topoisomerase I	AE1006
Betulinic Acid	Antineoplastic Activity	Cell Culture IP Mice	Not stated	Active	Inhibition of all neoplastic cell lines tested. Normal cells unaffected	AE1010
Betulinic Acid	Cytostatic Activity	Cell Culture	Not stated	Active	p53 mutant melanoma	AE1010
Betulinic Acid	Anticancerous Activity	Cell Culture	IC50=7.3	Active	Inhibits aminopeptidase N activity	AE1026
Betulinic Acid	Antiviral Activity	Cell Culture	Not stated	Active	Inhibits HIV replication	AE1027
Betulinic Acid	Antiviral Activity	Agar Plate	Not stated	Active	HIV-1 inhibitor	AE1028
Betulinic Acid	Antiviral Activity	Agar Plate	Not stated	Active	HIV-1	AE1014
Betulinic Acid	Antiviral Activity	Not stated	Not stated	Active	HIV	AE1006
Betulinic Acid	Antiviral Activity	Agar Plate	Not stated	Active	HIV (Inhibits virus-cell fusion)	AE1011
Cirsitakaoside	Mutagenic Effect	Cell Culture and Mice oral	5 mcg/ml 10 mcg/ml 15 mcg/ml	Inactive Inactive Active		AE1002
Cirsitakaoside	Antiproliferative Effect	Cell Culture and Mice oral	5 mcg/ml 10 mcg/ml 15 mcg/ml	Active Active Active	Proliferative index reduced. No effect on the mitotic index	AE1002
Scutellarein	Antiviral Activity Reverse Transcriptase Inhibitor Activity	Various	Not stated	Active	Avian myeloblastosis Rous-virus-2, Murine leukemia virus	AE1021

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Compound Tested	Activity Tested For	Test Model	Dosage	Result	Notes/Organism tested	Ref #
6-Methoxy-2-benzoxazolinone	Antifungal Activity	Agar Plate	Not stated	Active Active Active	<i>Botrytis cinerea</i> <i>Physalospora piricol</i> <i>Mycosphaerella arachidicola</i>	AE1004
6-Methoxy-2-benzoxazolinone	Antibacterial Activity	Agar Plate	Not stated	Active	<i>Proteus vulgaris</i>	AE1004
6-Methoxy-2-benzoxazolinone	Antiviral Activity	Cell Culture	Not stated	Active	Inhibited HIV-1 reverse transcriptase	AE1003
Linarin	Analgesic Activity	Mice	Not stated	Active	vs. writhing test	AE1017
Linarin	Antipyretic Activity	Mice	Not stated	Active	vs. yeast-induced hyperthermia test	AE1017
Vicenin	Antioxidant Activity	IP Mice	50 mcg/kg	Active	Pretreatment protected against radiation-induced liver lipid peroxidation	AE1023

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