

Biological Activities for Extracts of Macela (*Achyrocline satureioides*)

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Inflorescence Brazil	Toxic Effect (general)	ETOH (95%) Ext H2O Ext Hot H2O Ext	IV Mouse	500.0 mg/kg 500.0 mg/kg 500.0 mg/kg	Inactive Inactive Inactive	No toxicity noted.	T15380
Inflorescence Brazil	Barbiturate Potentiation	Hot H2O Ext	IP Mouse	200.0 mg/kg	Active		T15380
Entire Plant Brazil	Mutagenic Activity	H2O Ext	Agar Plate	200.0 mg 50.0 mg	Active Active	<i>Salmonella typhimurium</i>	T15841
Flowers Brazil	Mutagenic Activity	H2O Ext	Agar Plate	100.0 mg	Active	<i>Salmonella typhimurium</i>	J12611
Flowers Brazil	Cytotoxic Activity	MEOH(75%) Ext	Cell Culture	IC50: 2500 mcg/ml	Inactive	Cells - vero	L05437
Not Stated Argentina	Cytotoxic Activity	MEOH Ext	Cell Culture	Not stated	Active	Human hepatocellular carcinoma cell line HEP-G2.	AI1003
Entire Plant Brazil	Cytotoxic Activity	H2O Ext	Agar Plate	Not stated	Inactive	<i>Salmonella typhimurium</i>	T15841
Flowers Japan	Cytotoxic Activity	MEOH Ext	Cell Culture	50.0 mcg/ml	Active	Ca-9kb. 67% Inhibition.	K27314
Aerial Parts Argentina	Cytotoxic Activity	ETOH (80%) Ext	Cell Culture	0.47 mg/ml	Inactive	Cells - vero	L13506
Entire Plant Brazil	Genotoxicity Activity	H2O Ext	Agar Plate	10.0 mg	Active	<i>Escherichia coli</i>	T15841
Inflorescence Brazil	Cell Proliferation Inhibition	Hot H2O Ext	Cell Culture	100.0 mcg/ml	Active	Cells - lymph node - mice vs. mitogen-induced cell proliferation.	L06114
Aerial Parts Brazil	Anticrustacean Activity (to predict antitumor activity)	ETOH (95%) Ext	In vitro	LC50 =100 ppm	Active	<i>Artemia salina</i>	K24859
Inflorescence + Stem Uruguay	Anticrustacean Activity (to predict antitumor activity)	Hot H2O Ext	In vitro	1.0%	Active	<i>Artemia salina</i>	K18125
Leaf + Stem Paraguay	Anticrustacean Activity (to predict antitumor activity)	Hexane Ext	In vitro	LC50=66.8 mcg/ml	Active	<i>Artemia salina</i>	K25473
Aerial Parts Not Sated	Antihyperglycemic Activity	Fraction: Achyrofuran	Oral Mouse	20 mg/kg QID.	Active	Lowered blood glucose levels.	H29050
Entire Plant Peru	Antihyperglycemic Activity	H2O Ext	Intragastric Mouse	Not stated	Active	vs. type 2 diabetes model.	H29050

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Aerial Parts Argentina	Hepatoprotective Activity	H2O Ext	PO Mice	300 mg/kg	Active	vs. bromobenzene-induced damage.	AI1004
Aerial Parts Argentina	Choleretic Activity	H2O Ext	Rat	300 mg/kg	Active	Increased bile flow.	AI1004
Branch + Leaf Argentina	Antiviral Activity	ETOH (80%) Ext	Cell Culture	Not stated	Active	Virus - <i>pseudorabies</i>	L13506
Flowers Bolivia	Antiviral Activity	H2O Ext	Cell Culture	50.0 mcl	Active	Virus - HIV (T-lymphoblastoid infected cells).	K29837
Flowers Brazil	Antiviral Activity	MEOH(75%) Ext	Cell Culture	Not stated	Inactive	Virus - <i>Adenovirus</i> (Unspec) in vero cells.	L05437
Flowers Brazil	Antiviral Activity	MEOH(75%) Ext	Cell Culture	ED50: 250 mcg/ml	Inactive	Virus - <i>Poliovirus II</i> in vero cells.	L05437
Flowers Brazil	Antiviral Activity	MEOH(75%) Ext	Cell Culture	ED50: 312.5 mcg/ml	Inactive	Virus - <i>Herpes simplex 1</i> in vero cells.	L05437
Flowers Brazil	Antiviral Activity	MEOH(75%) Ext	Cell Culture	ED50: 625 mcg/ml	Inactive	Virus - <i>Vesicular stomatitis</i> in Vero Cells.	L05437
Aerial Parts Argentina	Antiviral Activity	ETOH (80%) Ext	Cell Culture	25.0 mg/ml	Inactive	Virus - <i>Herpes simplex 1</i>	M31054
Aerial Parts Argentina	Antimicrobial Activity	Hot H2O Ext	Agar Plate	Not stated	Active Active Active	<i>Escherichia coli</i> <i>Staphylococcus aureus</i> <i>Aspergillus niger</i>	AI1006
Entire Plant Brazil	Prophage Induction	H2O Ext	Agar Plate	5.0 Mg	Active	<i>Escherichia coli</i>	T15841
Inflorescence Brazil	Analgesic Activity	ETOH (95%) Ext H2O Ext Hot H2O Ext	IP Mouse IP Mouse IP Mouse	200.0 mg/kg 75.0 mg/kg 200.0 mg/kg	Active Active Active	vs. acetic acid-induced writhing.	T15380
Inflorescence Brazil	Anti-inflammatory Activity	ETOH (95%) Ext H2O Ext Hot H2O Ext	IP Mouse IP Mouse IP Mouse	200.0 mg/kg 75.0 mg/kg 200.0 mg/kg	Active Active Active	vs. carrageenan-induced pedal edema.	T15380
Inflorescence Brazil	Anti-inflammatory Activity	ETOH (95%) Ext H2O Ext Hot H2O Ext	External Mouse	0.75 mg 0.75 mg 0.75 mg	Active Active Active	vs. croton oil ear edema test.	M19650
Inflorescence Brazil	Immunomodulatory Activity	Hot H2O Ext	Mouse	100.0 mcg/ml	Active	Immunoglobulin-G	L06114

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Entire Plant Brazil	Immunostimulant Activity	Polysaccharide Fraction	IP Mouse	10.0 mg/kg	Strong Activity	vs. clearance of colloidal carbon.	T09670
Entire Plant Brazil	Immunostimulant Activity	Polysaccharide Fraction	Human Adult	1.0 mcg/ml	Active	Polymorphonuclear leucocyte phagocytosis rate increased.	T09670
Not stated USA	Antiatherosclerotic Effect	H2O Ext	In vitro	4 mcg/ml	Active	Inhibited copper-initiated LDL oxidation.	AI1001
Not stated USA	Antiatherosclerotic Effect	H2O Ext	In vitro	5 mcg/ml	Active	Inhibited platlet aggregation.	AI1001
Not stated USA	Antiatherosclerotic Effect	H2O Ext	In vitro	5 mcg/ml	Active	Inhibited peroxytrite induced LDL oxidation by 70%.	AI1001
Not stated USA	Antiatherosclerotic Effect	H2O Ext	In vitro	5 mcg/ml	Active	Inhibited lipoxigenase conjugate diene production by 95%.	AI1001
Not stated USA	Antioxidant Activity	H2O Ext	In vitro	5 mcg/ml	Active	Reduced by 95% after 3 hours.	AI1001
Aerial Parts Argentina	Antioxidant Activity	MEOH Ext	In vitro	Not stated	Active	Reduced iron (II)-dependent DNA damage.	AI1005
Aerial Parts Argentina	Antioxidant Activity	H2O Ext	In vitro	Not stated	Inactive	Iron (II)-dependent DNA damage.	AI1005
Aerial Parts Argentina	Antioxidant Activity	H2O Ext MEOH Ext	Cell Culture Cell Culture	IC50: 222 mcg/ml IC50: 100 mcg/ml	Active	Reduced oxidation in rat liver cells.	AI1005
Aerial Parts Argentina	Antioxidant Activity	Infusion	Cell Culture	100.0 mcg/ml	Inactive	vs. thiobarbituric acid-reactive damage in liver cells.	J14378
Aerial Parts Argentina	Antioxidant Activity	Infusion	Cell Culture	IC50: 120 mcg/ml	Weak Activity	vs. hydroperoxide-induced liver oxidation.	J14378
Not Stated Paraguay	Smooth Muscle Relaxant Activity	ETOAC Ext	Guinea Pig atrium	3.0 mcg/ml	Strong Activity	vs. KCL-induced contractions.	J19977
Not Stated Paraguay	Smooth Muscle Relaxant Activity	H2O Ext Butanol Ext ETOAC Ext	Rabbit aorta	3.0 mcg/ml 3.0 mcg/ml 3.0 mcg/ml	Active Equivocal Equivocal	vs. KCL-induced contractions.	J19977
Not Stated Paraguay	Smooth Muscle Relaxant Activity	ETOAC Ext Butanol Ext H2O Ext	Rabbit aorta	3.0 mcg/ml 3.0 mcg/ml 3.0 mcg/ml	Equivocal Equivocal Equivocal	vs. norepinephrine-induced contractions.	J19977
Inflorescence Brazil	Smooth Muscle Relaxant Activity	ETOH (95%) Ext	Guinea Pig illeum	16.1 mcg/ml	Active	vs. histamine-induced contractions.	T15380

Plant Part - Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Inflorescence Brazil	Smooth Muscle Relaxant Activity	ETOH (95%) Ext	Rat duodenum	16.1 mcg/ml	Active	vs. ACH-induced contractions. vs. barium-induced contractions.	T15380
Inflorescence Brazil	Smooth Muscle Relaxant Activity	ETOH (95%) Ext	Rat	16.1 mcg/ml	Inactive	vs. noradrenaline-induced contractions.	T15380
Inflorescence Brazil	Intestinal Motility Inhibition	ETOH (95%) Ext H2O Ext Hot H2O Ext	Intragastric Mouse	200.0 mg/kg	Inactive		T15380
Inflorescence Brazil	K+ Depletion	Hydroalcoholic Ext	Intragastric Rat	400.0 mg/kg	Inactive		K17039
Entire Plant Brazil	Molluscicidal Activity	ETOH (95%) Ext Hexane Ext	In vitro	100.0 ppm 100.0 ppm	Active Active	<i>Biomphalaria glabrata</i> eggs	M25853
Entire Plant Brazil	Molluscicidal Activity	Hexane Ext ETOH (95%) Ext	In vitro	100.0 ppm 100.0 ppm	Active Inactive	<i>Biomphalaria glabrata</i> adults	M25853
Aerial Parts Brazil	Molluscicidal Activity	ETOH (100%) Ext	In vitro	IC90: 43.0 ppm	Active	<i>Biomphalaria glabrata</i>	L09862
Aerial Parts Brazil	Antitrypanosomal Activity	ETOH (95%) Ext	In vitro	2.5 mg/ml	Inactive	<i>Trypanosoma cruzi</i>	K24859
Leaf + Stem Paraguay	Antitrypanosomal Activity	Hexane Ext	In vitro	250.0 mcg/ml	Weak Activity	<i>Trypanosoma cruzi</i> (41.2% activity)	K25473
Entire Plant Brazil	Antimalarial Activity	ETOAC Ext	Intragastric Mouse	100.0 mg/kg	Inactive	<i>Plasmodium berghei</i>	K07977
Inflorescence + Stem Uruguay	Plant Root Growth Inhibition	Hot H2O Ext	On plant	5.0%	Active	Assayed in <i>Triticum aestivum</i> .	K18125
Inflorescence + Stem Uruguay	Plant Root Growth Stimulant	Hot H2O Ext	On Plant	0.5%	Equivocal	Assayed in <i>Triticum aestivum</i> .	K18125
Leaf + Stem Paraguay	Insecticide Activity	Hexane Ext	In vitro	50.0 mcg	Equivocal	<i>Triatoma infestans</i> 8.3% mortality.	K25473
Leaf + Stem Paraguay	Moulting Activity (insect)	Hexane Ext	In vitro	50.0 mcg	Equivocal	<i>Triatoma infestans</i> 10% inhibition.	K25473
Not Stated Paraguay	Lipoxygenase Inhibition	Benzene Ext ETOAC Ext H2O Ext MEOH Ext	Cell Culture	10.0 mcg/ml	Inactive	Cells - RB-1	L11790

Biological Activities for Compounds in Macela (*Achyrocline satureioides*)

Compound	Activity Tested For	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Luteolin	Anti-inflammatory Activity	Mice	Not Stated	Active	Inhibition of tumor necrosis factor-alpha production. Inhibition of arachidonic acid-induced ear edema.	AI1007
Luteolin	Anti-allergic Activity	Mice	Not Stated	Active	Inhibition of oxazolone-induced allergic edema.	AI1007
Caryatin	Antitumor-promoting Activity	Cell Culture	Not Stated	Active		AI1008
Beta-caryophyllene	Anaesthetic Activity	Rabbit	10-1000 mcg/ml	Active	vs. conjunctival reflex test - increased number of stimuli necessary to provoke the reflex.	AI1009
Beta-caryophyllene	Anaesthetic Activity	Rat	10(-4) - 1 mcg/ml	Active	Decreased electrically evoked contractions of the rat phrenic hemidiaphragm.	AI1009
Beta-caryophyllene	Antiulcerogenic Activity	Rat	Not Stated	Active	Inhibited gastric mucosal injuries induced by necrotizing agents ethanol and 0.6 n HCL.	AI1010
Beta-caryophyllene	Antiulcerogenic Activity	Rat	Not Stated	Inactive	Water immersion stress and indomethacin-induced gastric lesions.	AI1010
Beta-caryophyllene	Digestive Effect	Rat	Not Stated	Inactive	Secretion of gastric acid and pepsin.	AI1010
Beta-caryophyllene	Cytotoxic Activity	Cell Culture	Not Stated	Active	Several solid tumor cell lines.	AI1011
Galangin	Anticontractility Effect	Rat	10(-8) -10(-4) m	Active	Inhibition of bladder contractile response to electrical stimulation without modifying contractions produced by exogenous acetylcholine.	AI1012
Galangin	Anticarcinogenic Effect	Mouse	Not Stated	Active	Inhibited liver conversion of aflatoxin b(1) to aflatoxin b(1)-8,9-epoxide (mutagenic).	AI1013
Galangin	Antigenotoxic Activity	In vitro	Not Stated	Active	Antioxidant activity also demonstrated.	AI1014
Galangin	Antimutagenic Activity	Cell Culture	Not Stated	Active	N-methyl-n-nitrosourea-induced <i>salmonella typhimurium</i> mutagenicity.	AI1015
Galangin	Antiglastogenic Effect	Mouse RBM	Not Stated	Active	N-methyl-n-nitrosourea-induced micronuclei in polychromatic RBC.	AI1015
Galangin	Toxicity (Genotoxic/mutagenic)		Not Stated	Inactive		AI1015

Compound	Activity Tested For	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Galangin	Antiviral Activity	Cell Culture	12-47 mcg/ml	Active Active Inactive Weak Activity	<i>Herpes simplex Virus-1</i> <i>Coxsackie B virus Type 1</i> <i>Adenovirus Type 31</i> <i>Reovirus</i>	AI1016
Alpha-pinene	Antifungal Activity	Cell Culture		Active	<i>Candida albicans</i>	AI1017
Tamarixetin	Vasodilator Effect	Rat	IC50=5.34	Active Active Active	Mesenteric Resistance Vascular Bed Aorta Iliac Arteries	AI1020

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