

## Biological Activities for Extracts of Mulungu (*Erythrina mulungu*)

Plant Part – Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism Tested	Ref #
Flowers Not Stated	Antimutagenic Activity	MEOH Ext MEOH Ext	Agar Plate Agar Plate	50.0 mcl/Disc 50.0 mcl/Disc	Inactive Inactive	<i>Bacillus subtilis</i> . NIG-1125 HIS MET <i>Escherichia coli</i> . B/R-WP2-TRP	T08867 T08867
Inflorescence Brazil	Antianxiety Activity	H2O-ETOH Ext	Oral Rat	100 mg/kg 200 mg/kg 400 mg/kg	Active	In the T-maze, an animal model that correlates to human generalized anxiety disorder and panic, avoidance latencies were impaired, without altering escape. Activity similar to drug diazepam.	AX1002
Inflorescence Brazil	Antianxiety Activity	H2O-ETOH Ext	Oral Rat	100 mg/kg 200 mg/kg 400 mg/kg	Active	Number of transitions was increased (light/dark transition model). Activity similar to drug diazepam.	AX1002
Inflorescence Brazil	Antianxiety Activity	H2O-ETOH Ext	Oral Rat	100 mg/kg 200 mg/kg 400 mg/kg	Inactive	Behavioral responses in the cat odor test were resistant to all forms of treatment.	AX1002
Stem + Bark Brazil	Antianxiety Activity	H2O-ETOH Ext	Not stated Mice	Not stated	Active	Increased the number and entries and time spent by mice in the open arms of the elevated plus-maze model of anxiety.	AX1003
Leaf + Stem Brazil	Cytotoxic Activity	MEOH (75%) Ext	Cell Culture	IC50 = 1000 mcg/ml	Inactive	Vero cells.	L05437
Not stated Argentina	Antitumor Activity	Not stated	Cell Culture	Not stated	Active	Inhibited the growth of crown gall tumors.	AX1001
Bark Argentina	Antibacterial Activity	Decoction H2O Ext Hot H2O Ext Hot H2O Ext	Agar Plate Agar Plate Agar Plate Agar Plate	Not Stated 1.0 mg/ml 62.5 mg/ml 62.5 mg/ml	Inactive Inactive Inactive Inactive	<i>Pseudomonas aeruginosa</i> . <i>Salmonella typhi</i> . <i>Escherichia coli</i> . <i>Staphylococcus aureus</i> .	K17523 J11153 K14683 K14683
Root Bolivia	Antibacterial Activity	ETOH (95%) Ext	Agar Plate	Not Stated	Active	<i>Staphylococcus aureus</i> .	M05541
Leaf Egypt	Antibacterial Activity	ETOH (70%) Ext ETOH (70%) Ext ETOH (70%) Ext ETOH (70%) Ext	Agar Plate Agar Plate Agar Plate Agar Plate	Not Stated Not Stated Not Stated Not Stated	Active Active Active Inactive	<i>Bacillus cereus</i> . <i>Bacillus megaterium</i> . <i>Staphylococcus albus</i> . <i>Staphylococcus aureus</i> .	T06729 T06729 T06729 T06729
Stembark Bolivia	Antibacterial Activity	ETOH (95%) Ext	Agar Plate	1.0 mg/ml	Weak Activity	<i>Staphylococcus aureus</i> .	H03771

Plant Part – Origin	Activity Tested For	Type Extract	Test Model	Dosage	Result	Notes/Organism Tested	Ref #
Stembark Bolivia	Antimycobacterial Activity	ETOH (95%) Ext	Agar Plate	100.0 mcg/ml	Active	<i>Mycobacterium fortuitum.</i>	H03771
Root Bolivia	Antimycobacterial Activity	ETOH (95%) Ext	Agar Plate	Not Stated	Active	<i>Mycobacterium smegmatis.</i>	M05541
Leaf Egypt	Antifungal Activity	ETOH (70%) Ext	Agar Plate	Not Stated	Inactive	Several fungi.	T06729
Leaf + Stem Brazil	Antiviral Activity	MEOH (75%) Ext MEOH (75%) Ext MEOH (75%) Ext MEOH (75%) Ext	Cell Culture Cell Culture Cell Culture Cell Culture	Not Stated ED50 = 400.0 mcg/ml ED50 = 400.0 mcg/ml ED50 = 666.0 mcg/ml	Inactive Inactive Inactive Inactive	Adenovirus (unspec.) in vero cells. <i>Herpes simplex</i> 1 virus in vero cells. <i>Herpes simplex</i> 2 virus in vero cells. Vesicular stomatitis virus in vero cells.	L05437 L05437 L05437 L05437
Bark Argentina	Antifungal Activity	Hot H2O Ext	Agar Plate	62.5 mg/ml	Inactive	<i>Aspergillus niger.</i>	K14683
Fresh Fruit + Leaf + Stem Greece	Antiphage Activity	H2O Ext H2O Ext H2O Ext H2O Ext H2O Ext H2O Ext	Agar Plate Agar Plate Agar Plate Agar Plate Agar Plate Agar Plate	0.1 g/Plate 0.1 g/Plate 0.1 g/Plate 0.1 g/Plate 0.1 g/Plate 0.1 g/Plate	Inactive Inactive Inactive Inactive Inactive Inactive	Bacteriophage MS2. Bacteriophage Phi-Chi-174. Bacteriophage T-7. Bacteriophage T2. Bacteriophage T4. Bacteriophage 0PS7.	L15988 L15988 L15988 L15988 L15988 L15988
Leaf + Stem Germany	Repellent Activity (Animal)	Leaves	Not Stated	Variable	Active	<i>Helix pomatia.</i>	T07907
Seed Uruguay	Chymotrypsin Inhibition	Chromatographic Fraction Saline Ext	Not Stated Not Stated	4040 Units Per mg Protein 890 Units Per mg Protein	Active Active		M14029 M14029
Seed Uruguay	Trypsin Inhibition	Chromatographic Fraction Saline Ext	Not Stated Not Stated	3740 Units Per mg Protein 940 Units Per mg Protein	Active Weak Activity		M14029 M14029

## Biological Activities for Compounds of Mulungu (*Erythrina mulungu*)

Compound	Activity Tested For	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Erysodine	Neuronal Nicotinic Receptor Inhibition	IV Rat	0.3-10 mg/kg 0.32-32 mg/kg	Active Active	Blocked nicotine receptors; competitive antagonist. Reduced nicotine self-administration and lowered break points.	AX1007
Erysodine	Neuronal Nicotinic Acetylcholine Receptor Inhibition	Not stated	Not stated	Active	Inhibited cytosine binding at neuronal nicotinic acetylcholine receptors. A competitive reversible antagonist of nicotine-induced dopamine release from striatal slices and nicotine-induced 86Rb+ efflux from IMR-32 cells.	AX1008
Erysodine	Neuronal Nicotinic Acetylcholine Receptor Inhibition	Oral Mice	Not stated	Active	Attenuated nicotine's hypothermic effects and its anxiolytic-like effects in the elevated plus-maze test. Prevented early developing decrease and the late-developing increase in locomotor activity produced by nicotine. Crosses the blood brain barrier.	AX1008
Erycristagallin	Antibacterial Activity	Agar Plate	MIC=3.13-6.25 mcg/ml	Active	Staphylococcus aureus, methicillin-resistant.	AX1005
Lectin	Neurotransmitter Inhibition	Bound to clostridial neurotoxin Cell Culture	Not stated	Active	Selective for nociceptive afferents.	AX1006
Lectin	Neurotransmitter Inhibition	Bound to clostridial neurotoxin. In vivo	Not stated	Active	Attenuated sensory transmission from nociceptive afferents through the spinal cord.	AX1006
Lectin	Agglutination Activity	in vitro	Not stated	Active	Agglutination of sperm.	AX1016
Oleanolic acid	Antitumor Activity	Cell Culture	IC50=60 micromol/L	Active	Human colon carcinoma cell line HCT15.	AX1009
Oleanolic acid	Hepatoprotective Activity	Mice	Not stated	Active	Pre-treatment protected against CCl(4)-induced hepatotoxicity.	AX1013
Oleanolic acid	Anti-ulcer Activity	Oral Rat  Oral Mice	50 mg/kg 100 mg/kg 200 mg/kg 200 mg/kg	Active Active Active Active	Inhibited gastric lesions induced by ethanol, aspirin and pylorus ligation; comparable to ranitidine (50 mg) and omeprazole (100 & 200 mg). Inhibited HCl-ethanol-induced ulcers.	AX1011

Compound	Activity Tested For	Test Model	Dosage	Result	Notes/Organism tested	Ref #
Oleanolic acid	Anti-inflammatory Activity	Mice  Cell Culture (rat leukocytes)	Not stated  IC50=17 microM	Active Active Active Active	Vs 12-deoxyphorbol-13-phenylacetate induced ear edema. Vs. TPA-induced dermatitis. Vs. bradykinin and phospholipase A2-induced paw edema. Inhibited the production of leukotriene B4.	AX1012
Oleanolic acid	Nuclear factor-kappa B Activation	Cell Culture	Not stated	Active	Activated the protein/DNA binding of NF-kappaB resulting in increased production of nitric oxide and TNF-alpha.	AX1014
Oleanolic acid	Antitrypanocidal Activity	in vitro	MC100=250 mcg/ml	Active	<i>Trypanosoma cruzi</i> .	AX1015
Oleanolic acid	Urease Inhibition	Not stated	Not stated	Inactive		AX1010
Oleanolic acid	Beta-lactamase Inhibition	Not stated	Not stated	Inactive		AX1010
Oleanolic acid	Acetyl cholinesterase Inhibition	Not stated	Not stated	Inactive		AX1010
Oleanolic acid	Alpha-glucosidase	Not stated	Not stated	Active		AX1010

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