

Short report

Antibacterial activity of plant extracts from Brazilian southeast region

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Abstract

A screening was conducted with 26 plants collected in the Brazilian southeast region, to identify plant extracts with antibacterial properties against *Aeromonas hydrophila*, *Bacillus subtilis*, *Pseudomonas aeruginosa* and *Staphylococcus aureus*. Initially, the agar diffusion method was employed. Then, those extracts presenting activity were submitted to a broth microdilution assay to determine the minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC). It was observed that 13 of the tested extracts showed antibacterial activity. The best results were obtained with those from *Lantana lilacina* and *Phyllanthus tenellus*.

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Keywords: Brazilian plants; Antibacterial activity; *Bacillus*; *Aeromonas*; *Pseudomonas*; *Staphylococcus*; *Lantana lilacina*; *Phyllanthus tenellus*

1. Plants

Plants (Table 1) were collected in Lavras City, State of Minas Gerais, Brazilian southeast region, and identified by comparison with specimens available in the Herbarium ESAL–Universidade Federal de Lavras.

2. Uses in traditional medicine

Aristolochia spp. as diuretic, sedative, stomachic, antiseptic, diaphoretic and emmenagogue and against asthma, fever, pruritus and eczemas [1]. *Baccharis dracunculifolia* as antipyretic [2]. *Banisteriopsis* sp. as antiphlogistic and diuretic [2]. *Bidens pilosa* as diuretic and antipyretic and against cough, blennorrhea, hepatic and urinary ailments [1]. *Buddleja brasiliensis* as anti-hemorrhoidal, anti-rheumatic, analgesic, sudorific, calmative, emollient and used against

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Table 1

Antibacterial activity of plants leaves, methanol extract (ME) and their fractions (obtained by washing with hexane, EtOAc and MeOH), against *A. hydrophila* (Ah), *B. subtilis* (Bs), *P. aeruginosa* (Pa) and *S. aureus* (Sa)

Plants ^a	Material	Inhibition zone diameter ^b (mm)			
		Ah	Bs	Pa	Sa
<i>Aristolochia</i> sp.	ME	–	10.0	–	9.0
	Hexane	nt	12.0	nt	11.5
	EtOAc	nt	–	nt	–
	MeOH	nt	–	nt	–
<i>Baccharis dracunculifolia</i>	ME	–	–	–	7.5
	Hexane	nt	nt	nt	–
	EtOAc	nt	nt	nt	–
	MeOH	nt	nt	nt	7.0
<i>Banisteriopsis</i> sp.	ME	–	–	–	–
<i>Bidens pilosa</i>	ME	–	–	–	–
<i>Buddleja brasiliensis</i>	ME	7.5	–	–	–
<i>Calendula officinalis</i>	ME	–	–	–	–
<i>Copaifera langsdorffii</i>	ME	–	9.0	–	7.0
	Hexane	nt	7.0	nt	–
	EtOAc	nt	8.0	nt	–
	MeOH	nt	–	nt	11.0
<i>Hypericum perforatum</i>	ME	12.5	9.5	–	9.5
	Hexane	–	–	nt	–
	EtOAc	8.0	–	nt	–
	MeOH	12.5	7.0	nt	11.0
<i>Imperata brasiliensis</i>	ME	–	–	–	–
<i>Kalanchoe</i> sp.	ME	–	–	–	–
<i>Lantana camara</i>	ME	12.0	8.0	–	12.0
	Hexane	–	–	nt	7.5
	EtOAc	–	7.5	nt	7.5
	MeOH	11.0	7.5	nt	9.0
<i>Lantana lilacina</i>	ME	12.5	10.0	–	7.5
	Hexane	–	–	nt	6.5
	EtOAc	–	–	nt	–
	MeOH	10.5	9.0	nt	10.0
<i>L. lilacina</i> (leaves and stem)	ME	13.5	12.0	–	7.0
	Hexane	–	7.5	nt	7.5
	EtOAc	–	–	nt	–
	MeOH	15.0	10.0	nt	10.0
<i>Maytenus ilicifolia</i>	ME	–	–	–	–
<i>Mikania glomerata</i>	ME	–	–	–	–
<i>Mikania hirsutissima</i>	ME	8.0	–	–	10.0
<i>Moringa</i> sp.	ME	–	7.0	–	–
<i>Oxalis hirsutissima</i>	ME	–	–	–	–
<i>Phyllanthus tenellus</i>	ME	9.0	–	–	9.0
	Hexane	–	nt	nt	–
	EtOAc	–	nt	nt	–
	MeOH	10.5	nt	nt	10.5
<i>Plectranthus amboinicus</i>	ME	–	–	–	–
<i>Sambucus nigra</i>	ME	–	–	–	–
<i>Schinus molle</i>	ME	–	–	–	–
<i>Silybum marianum</i>	ME	–	–	–	–
<i>Smilax</i> sp. (leaves and stem)	ME	–	–	–	–
<i>Solanum cernuum</i>	ME	–	–	–	–
<i>Struthanthus flexicaulis</i>	ME	7.0	–	–	–
<i>Talinum patens</i>	ME	8.0	–	–	–

0.4 mg of material per paper disc (diameter: 6 mm); (–): no inhibition; (nt): not tested.

^a Except when otherwise mentioned, leaves were used.

^b Average of two results.

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