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Short report

## Anti-inflammatory activity of *Pothomorphe peltata* leaf methanol extract

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### Abstract

The methanol extract of *Pothomorphe peltata* leaves, orally administered at the dose of 20 mg/kg (equivalent to 2.50 g dry plant/kg) body weight, exhibited a significant anti-inflammatory activity, comparable with phenylbutazone (80 mg/kg, p.o.), against adjuvant-carrageenan-induced edema in rats. © 2000 Elsevier Science B.V. All rights reserved.

*Keywords:* *Pothomorphe peltata*; Anti-inflammatory activity; 4-Nerolidylcatechol

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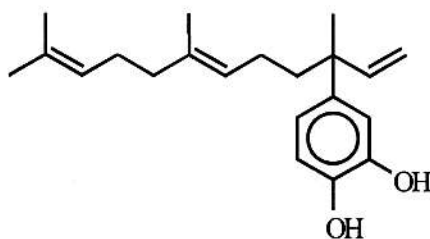
**Plant.** *Pothomorphe peltata* (L.) Miq. (Piperaceae) leaves were collected in the district of Totaizal, in Beni (Bolivia), in November 1996 and identified by botanists from the Facultad de Farmacia y Bioquímica, Universidad de Buenos Aires, Argentina, where a voucher specimen (no. 553) is deposited.

**Uses in traditional medicine.** Leaves of *P. peltata* are extensively used as an anti-inflammatory agent throughout tropical South and Central America [1–4]. Recent studies have demonstrated that different extracts of the leaves exert significant in vitro antioxidant and free radical scavenging activity [5,6].

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**Previously isolated classes of constituents.** Alkaloids and carotenoids [7], and catechols [4-nerolidylcatechol (4-NC) (**1**); to its presence the peroxy radical scavenging and lipid peroxidation inhibiting activities of the plant have been attributed] [6,8–10].

**Tested material.** The MeOH extract (24-h maceration) of air-dried plant material (yield: 8.3%). The presence of 4-NC in the extract was detected by TLC [9,10].

**Studied activity.** Anti-inflammatory activity by adjuvant-carrageenan-induced inflammation model in rats [11], using phenylbutazone as a reference drug. Treatments, dissolved in 1 ml of 1.6% Tween 80 (v/v), were administered orally 1 h prior to carrageenan injection.

**Animals.** Wistar rats of either sex, weighing 180–200 g, were used. They were maintained in standard environmental conditions and fed on a standard laboratory diet and water ad libitum.

**Results.** Reported in Table 1.

Table 1  
Effect of *Pothomorphe peltata* leaf methanol extract on adjuvant-carrageenan-induced inflammation in rats

Treatment	Dose (mg/kg, p.o.)	Paw volume (ml) at time after carrageenan injection <sup>a</sup>			
		Initial	3 h	5 h	7 h
Control (vehicle, 1 ml, p.o.)	–	0.19 ± 0.01	0.24 ± 0.01	0.29 ± 0.06	0.30 ± 0.02
Phenylbutazone	80	0.21 ± 0.01	0.14 ± 0.01* [41.66]	0.14 ± 0.02* [51.72]	0.09 ± 0.02* [70.00]
<i>P. peltata</i>	20 <sup>b</sup>	0.20 ± 0.03	0.16 ± 0.01* [33.33]	0.15 ± 0.02* [48.28]	0.11 ± 0.02* [63.33]

<sup>a</sup> Values are mean ± S.E. ( $n = 6$ ), [percent reduction]; + $P < 0.05$  vs. control, Student's  $t$ -test.

<sup>b</sup> Equivalent to approximately 2.50 g dry plant/kg.

**Conclusions.** *P. peltata* leaf extract (20 mg/kg, p.o.) exhibited a significant in-vivo anti-inflammatory activity by reducing the oedematous response induced by carrageenan, with an effect comparable with that of phenylbutazone (80 mg/kg, p.o.). These results support the use of the plant in traditional medicine of tropical South and Central America. The anti-inflammatory effectiveness of the extract containing 4-NC may be related to its ability to suppress lipid peroxidation that occurs during the inflammatory response [12–16].

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