

EDEMATOGENIC ACTIVITY OF *Polistes lanio lanio* WASP VENOM. Yshii, L.M.^{1**}, Souza, G.H.M.F.^{2,3**}, Hyslop, S.², Muscará, M.N.¹, Eberlin, M.N.³, Ribela, M.T.C.P.⁴, Antunes, E.², Costa, S.K.P.¹. ¹Dept. of Pharmacology, ICB-I, USP, São Paulo; ²Dept. of Pharmacology, FCM, UNICAMP, Campinas; ³Dept. of Organic Chemistry, IQ, UNICAMP, Campinas; ⁴Biotechnology Dept., IPEN-CNEN, São Paulo, SP, Brazil.

Objective: Wasp stings can cause life-threatening allergic reactions, intense pain and inflammation. *Polistes* spp. wasps are common in Brazil, but little is known about their venom. In this study, we investigated the inflammatory activity of *Polistes lanio lanio* venom (PLLv) in the cutaneous microvasculature and examined some of the mediators involved.

Methods and Results: C57BL/6 mice (25-30 g) or Wistar rats (200-250 g) were anesthetized with urethane and bovine ¹²⁵I-albumin (0.03 MBq) was injected i.v. Dorsal skin edema in animals was assayed as described elsewhere (Br. J. Pharmacol. 139:59,2003) and was expressed as the extravascular accumulation of ¹²⁵I-albumin). Mouse paw edema (Eur J Pharmacol. 399:235, 2000) was measured for up to 4 h after PLLv injection. The results were expressed as the mean \pm S.E.M. PLLv (0.3-30 μ g/site) caused potent, dose-dependent edema in the dorsal skin of both species. In the mouse paw, the PLLv (EC_{50%} 7 μ g) exhibited a long-lasting oedema (> 4 h) that peaks at 2 h and more potent (approximately 50%) than carrageenan (300 μ g/paw). In the mouse dorsal skin, PLLv (EC_{50%} 7 μ g/site)-induced effect was unaffected by the bradykinin (BK) B₂ receptor antagonist HOE 140 but was reduced by the BK B₁ receptor antagonist Des-Arg⁹-[Leu⁸]-BK (269 \pm 28 and 94.5 \pm 35 μ l/site for control and treated, n=3; p<0.05). Dialysis of PLLv (membrane MW cutoff 2000) reduced the edema by 40%. The tachykinin NK₁ receptor antagonist SR140333 (1 nmol) inhibited both the dorsal edema (89 \pm 17 and 17 \pm 6 μ l/site for PLLv and PLLv+SR140333; n=5; p<0.05) and paw oedema. Similarly, in rats pretreated with capsaicin as neonates (50 mg/kg; s.c.), the PLLv-induced edema was reduced (27 \pm 6 and 9.4 \pm 2.8 μ l/site for control and capsaicin; n=3). Preliminary analysis by mass spectrometry (Q-TOF/CapLC) showed that the venom contained a variety of peptides with molecular masses of 1173 to 3581, the identification of which is in progress.

Conclusions: PLLv causes potent, long-lasting edema that is mediated by multifactorial mechanisms including substances with MW lower than 2000 (probably amines), sensory nerve components (tachykinins) and possibly kinins (kallidin).

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