Antinociceptive Activity of Atranorin in Mice Orofacial Nociception Tests

Rosana S. Siqueira[a], Leonardo R. Bonjardim[a], Adriano A. S. Araújo[a], Bruno E. S. Araújo[a], Marcélia G. D. Melo[a], Marília G. B. Oliveira[a], Daniel P. Gelain[a], Francilene A. Silva[a], Josimari M. DeSantana[b], Ricardo L. C. Albuquerque-Júnior[c], Ricardo F. Rocha[d], José C. F. Moreira[d], Angelo R. Antoniolli[a], and Lucindo J. Quintans-Júnior[a,*]

[a] Departamento de Fisiologia (DFS), Universidade Federal de Sergipe (UFS), Campus Universitário "Prof. Aloísio de Campos", Av. Marechal Rondom, s/n, CEP 49.100-000, São Cristóvão, SE, Brazil. Fax: +55 (79) 32 12-66 40. E-mail: lucindo_jr@yahoo.com.br or lucindo@pq.cnpq.br

[b] Núcleo de Fisioterapia (NFT), Universidade Federal de Sergipe (UFS), Campus Universitário "Prof. Aloísio de Campos", Av. Marechal Rondom, s/n, São Cristóvão, SE, Brazil

[c] Instituto de Tecnologia e Pesquisa, Universidade Tiradentes (ITP/UNIT), Av. Murilo Dantas, 300, Bairro Farolândia, CEP 49032-490, Aracaju, SE, Brazil

[d] Centro de Estudos em Estresse Oxidativo, Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, RS, Brazil

* Author for correspondence and reprint requests

Z. Naturforsch. **65 c**, 551–561 (2010); received February 8/April 19, 2010

Physicochemical characterization and antinociceptive and anti-inflammatory activities of atranorin (AT) extracted from *Cladina kalbii* Ahti in formalin- and capsaicin-induced orofacial pain and anti-inflammatory tests in rodents were studied. Physicochemical characterization showed that AT has the general formula $C_{19}H_{18}O_8$. Male Swiss mice were pretreated with AT (100, 200, and 400 mg/kg, i.p.), morphine (3 mg/kg, i.p.), or vehicle (0.9% saline with two drops of 0.2% Tween 80) before formalin (20 μl, 2%) or capsaicin (20 μl, 2.5 μg) were injected into the right vibrissa. Our results showed that i.p. treatment with AT displayed marked inhibitory effects in different orofacial pain tests in mice. AT (400 mg/kg, i.p.) was effective in reducing the nociceptive face-rubbing behavioural response in both phases of the formalin test, which was also naloxone-sensitive. Additionally, AT produced a significant antinociceptive effect at all doses in the capsaicin test. Such results were unlikely to be provoked by motor abnormality, since AT-treated mice exhibited no performance alteration on the rota rod apparatus. AT exhibited significant anti-inflammatory activity in the acute model of inflammation (leukocyte migration to the peritoneal cavity), carrageenan- and arachidonic acid-induced hind paw edema in rats. Additionally, AT exhibited a dose-dependent antioxidant activity *in vitro*, as assessed by total radical-trapping antioxidant parameter and total antioxidant reactivity assays. All these findings suggest that AT might represent an important tool for the management of orofacial pain and/or inflammatory disorders.

Key words: Antioxidant, Atranorin, Nociception, Orofacial Pain