INVESTIGATION OF ANTIINOCICEPTIVE ACTIVITY OF THE MONOTERPENE (+)-3-CARENE IN MICE

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Introduction and objectives: Pharmacologists have searched for new and more effective drugs with fewer side effects. In this context, several studies have shown antinociceptive activity of individual constituents of essential oils, such as the terpenes, in particular, the monoterpenes. Thus, this study aimed to investigate the possible antinociceptive effect of the monoterpene (+)-3-Carene. Materials and methods: Male Swiss mice (*Mus musculus*), weighing between 25-35 g, were separated (n=8) in the groups: control (vehicle), standard (morphine 15 mg/kg) or (+)-3-Carene (25, 50 and 75 mg/kg; i.p.). In the writhing test, 30 minutes after treatments, the animals received 1% acetic acid solution (i.p.), were then observed for 10 minutes, the number of writhes recorded, and the time until the first contortion. In the formalin test, 30 minutes post-treatments were administered 2.5% formalin solution into the subplantar region of the right hindpaw. The following was observed lick time this leg in the first (0-5 min) and second phase (15-30 min). Results and conclusions: (+)-3-Carene at doses of 25, 50 and 75 mg/kg was able to significantly reduce the number of writhes induced by acetic acid, respectively to (6.0±0.9***; 2.8±1.2***; 0.8±0.3***) when compared to the control group (19.2±2.3). In addition, the higher dose increased the latency to first contortion (632.1±97.5***), in comparison to control (200±5.2). In the first phase of the formalin test, there was significant reduction in the time of paw lick at doses of 50 and 75 mg/kg (62.3±5.4 e 57.5±2.4**) compared to control (84.3±3.5). Similarly, the same doses decreased the licking time in the second stage (67.2±13.2** e 2.2±1.1***) compared to control (205.5±21.6). The results suggest that (+)-3-Carene presents marked antinociceptive activity, which supports the continuity of the studies, particularly with respect to mechanism of action.

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Key Words: (+)-3-Carene, monoterpenes, antinociceptive.