

Alleviation of morphine withdrawal signs but not tolerance by the essential oil of *Kelussia odoratissima* Mozaff.

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Background and Aims: The aim of the present study was to assess the effects of chronic and acute treatment of the essential oil (EO) of *Kelussia odoratissima* Mozaff. on the development of morphine tolerance and dependence in mice.

Methods: Mice were rendered tolerant and dependent to morphine by subcutaneous injection of morphine over a period of 5 days. Tolerance was assessed using the tail-pinch test and withdrawal signs of morphine were precipitated by injecting naloxone 2 h after the final morphine injection.

Results: Repeated injection of the EO of *K. odoratissima* (5 and 10 mg/kg) for 4 days significantly suppressed morphine-withdrawal jumps, a sign of the development of dependence to opiate as assessed by naloxone precipitation withdrawal on day 5 of testing. A single injection (25, 50, 100 mg/kg) of the EO on day 5, 1h prior to morphine failed to produce any significant change in morphine withdrawal signs. Neither the acute nor the chronic administration of the EO of *K.*

Conclusions: *odoratissima* did significantly influence the development of tolerance to the analgesic effect of morphine. Alleviation in morphine signs of withdrawal after chronic injection with *K. odoratissima* is indicative of reversal of neuronal adaptation that takes place during morphine presence in the brain.

Keywords: *Kelussia odoratissima*; Morphine; Tolerance; Dependence