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Effect of Rosmarinus officinalis L. aerial parts extract and fractions on morphine withdrawal syndrome in mice

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Abstract

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Background: Our previous studies have shown that the aqueous and ethanolic extracts of Rosmarinus officinalis L. aerial parts reduce morphine withdrawal syndrome in mice. Objective: As R. officinalis L. aerial parts total extracts reduced morphine withdrawal syndrome, we decided to evaluate the effects of rosemary extract fractions on the withdrawal syndrome. Method: Dependence was induced using subcutaneous injections of morphine daily for three days (50, 50 and 75 mg/kg). On the fourth day, morphine was injected two hours prior to the intraperitoneal injection of naloxone. The number of jumps during the 30 minute period after naloxone injection was considered as measure of the withdrawal syndrome. Results: The results indicate that the aqueous, methanolic-aqueous and chloroformic fractions (0.96 g/kg and 1.68 g/kg, i.p.) and also clonidine (0.3 mg/kg) and diazepam (5 mg/kg) reduce the number of jumps when they are injected 1 h prior the last dose of morphine. Two evaluable MPLC chloroformic fractions also reduce the number of jumping in mice. In the open field activity, test, on the contrary of fraction 2, the fraction 1 and clonidine reduce locomotor activity. Conclusion: It is concluded that the reduction of withdrawal morphine syndrome by R. officinalis aerial parts fraction 1 may be due to the reduction of movement by this fraction, but the fraction 2 may reduce withdrawal syndrome via an interaction with opioid system.

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Author keywords

Fraction; Morphine; Opioid system; Rosmarinus officinalis; Withdrawal syndrome

Indexed keywords

EMTREE drug terms: clonidine; diazepam; morphine; naloxone; Rosmarinus officinalis extract

EMTREE medical terms: animal experiment; animal model; article; controlled study; drug dependence; drug effect; drug formulation; drug withdrawal; jumping; mouse; nonhuman; rosemary; withdrawal syndrome

Species Index: Mus; Rosmarinus officinalis

Chemicals and CAS Registry Numbers: clonidine, 4205-90-7, 4205-91-8, 57066-25-8; diazepam, 439-14-5; morphine, 52-26-6, 57-27-2; naloxone, 357-08-4, 465-65-6

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