The antidepressant-like action of p,p'-methoxyl-diphenyl diselenide compound in mice

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INTRODUCTION: Selenium-containing molecules have been reported to have promising pharmacological properties. p,p'-Methoxyl-diphenyl diselenide (MeOPhSe)₂, an organoselenium compound, inhibits the uptake of [³H] serotonin in vitro. Considering the promising pharmacological properties of (MeOPhSe)₂, the possible acute and subchronic antidepressant-like action of (MeOPhSe)₂ in the mouse modified forced swimming test (MFST) were investigated.

MATERIAL AND METHODS: Male Swiss mice were treated with a single dose of (MeOPhSe)₂ (0.1-5 mg/kg, i.g.), for the acute protocol, or for seven days for the subchronic protocol. After 30 min, mice were challenged in the MFST. The dose of 5 mg/kg of (MeOPhSe)₂ was chosen to perform a time-response curve. Paroxetine (8 mg/kg i.p.), a positive control, was administered 45 min before the MFST. The locomotor activity of mice was carried out before the MFST in the activity box. Mice were killed and plasma obtained to determine the activities of alanine (ALT) and aspartate (AST) aminotransferases and the levels of urea, which were assayed spectrophotometrically using commercial kits. Animals were used according to the guidelines of the Committee on Care and Use of Experimental Animal Resources/UFSM (5978060115).

DISCUSSION AND RESULTS: The results showed that (MeOPhSe)₂ at a dose of 5 mg/kg, administered both acutely and subchronically, reduced the immobility time of mouse in the MFST. The time point of 30 min was the best time for the (MeOPhSe)₂ antidepressant-like action. At all experimental conditions, (MeOPhSe)₂ did not produce any significant change in the locomotor and exploratory activities. (MeOPhSe)₂ did not increase AST and ALT activities and urea levels.

CONCLUSION: Our data demonstrated that (MeOPhSe)₂ administered acutely and subchronically had antidepressant-like action in mice. The best antidepressant-like effect of (MeOPhSe)₂ was attained when the compound was administered to mice at 30 min before the MFST. (MeOPhSe)₂ did not cause hepatic and renal toxicity to mice.

Key Words: Selenium, antidepressant, mice

Acknowledgements: UFSM, FAPERGS, CAPES.