

The Effect of St. John's Wort {*Hypericum perforatum* L.} Extract on Locomotor Activity in Male Syrian Hamsters {*Mesocricetus auratus*}

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ABSTRACT

St. John's Wort (*Hypericum perforatum* L.) is a perennial herb widely known for its therapeutic effects. The aim of this study is to examine the effect of St. John's Wort extract applied at different doses to adult male Syrian hamsters (*Mesocricetus auratus*) on locomotor activity. St. John's Wort extract has a significant effect on hamster locomotor activities and as the dose increases, it decreases the rhythmic activity of the animals and causes rhythm disturbance.

The endogenous circadian rhythm of locomotor activity in mammals is produced and controlled by a circadian oscillator located in the hypothalamic suprachiasmatic nuclei (SCN). Antidepressants may have side effects such as loss of appetite, overeating or insomnia, depending on the chemical substance they contain and the mechanism of action. These side effects are especially important for the success of depression treatment. It is expected that the antidepressant drug will not have such side effects. Commonly in St. John's wort, *Hypericum perforatum* L. is a perennial herb long known for its putative medicinal properties, including wound-healing, diuretic, antibiotic, and antiviral effects. Although clinical trials have yielded conflicting results, currently alcoholic extracts of St. John's Wort are mostly used in the treatment of mild to moderate forms of depression as an alternative to classical antidepressants with a favorable side-effect profile. Extracts of St. John's Wort have also consistently shown antidepressant-like properties in behavioral patterns in rodents. It is known that the active principle and mechanism of action responsible for the antidepressant effect are still being investigated. Considering all these, the effect of St. John's Wort extract applied at different doses to adult male Syrian hamsters (*Mesocricetus auratus*) on locomotor activity was investigated.

INTRODUCTION

METHOD

- Adult male Syrian hamsters were divided into 4 groups as control and experimental groups (50 mg/kg, 100 mg/kg, 200 mg/kg).
- Before the experiment, the animals were put on the running wheels for a week and those who showed regular rhythmic activity were included in the experimental group.
- St John's Wort extract injections were administered intraperitoneally to the animals for 10 days.
- Locomotor activities were recorded and a double-plot actogram was performed.

RESULTS

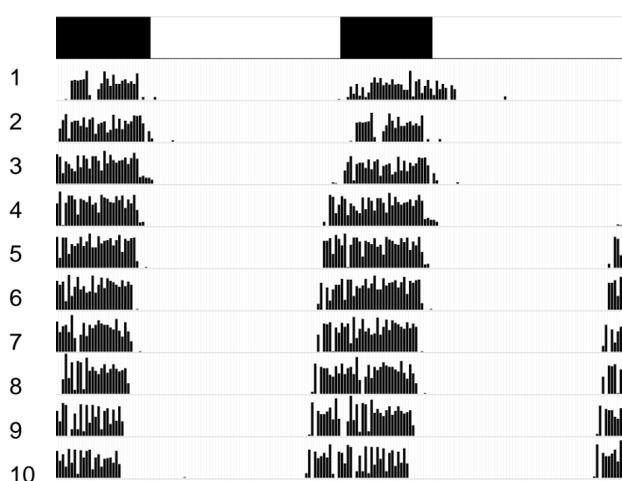


Figure 1. Actogram plot of the control group.

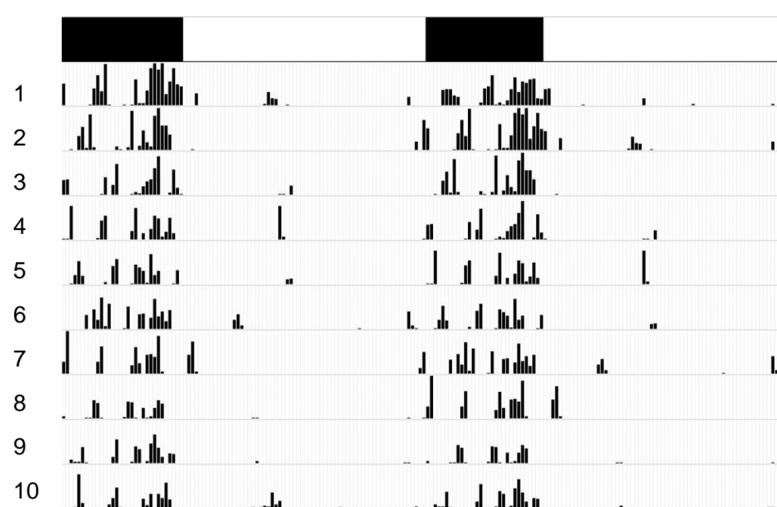


Figure 2. Actogram plot of hamsters treated with 50 mg/kg *Hypericum perforatum* extract.

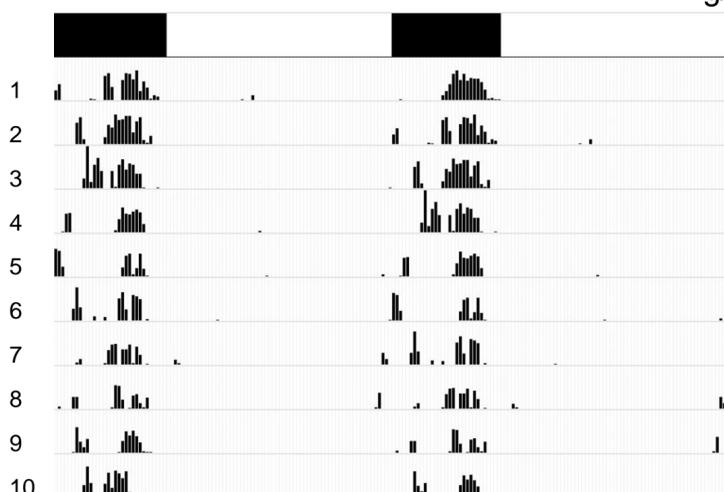


Figure 3. Actogram plot of hamsters treated with 100 mg/kg *Hypericum perforatum* extract.

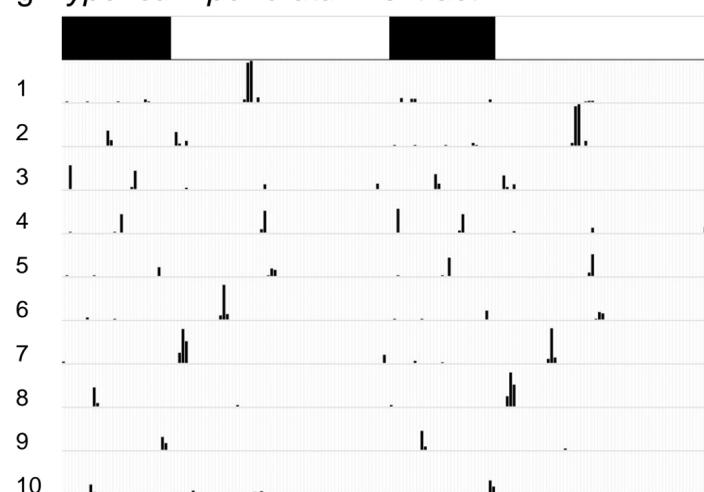


Figure 4. Actogram plot of hamsters treated with 200 mg/kg *Hypericum perforatum* extract.

Hamsters in the control group showed activities consistent with the 16L photoperiod; rhythmic activities took place in the dark phase (Figure 1). A decrease in activity was observed in the groups administered 50 and 100 mg/kg extract (Figure 2 and 3). In addition, phase shift started at these doses. In the group treated with 200 mg/kg St. John's Wort extract, arrhythmia was observed in locomotor activity (Figure 4).

CONCLUSIONS

St. John's Wort extract has a significant effect on hamster locomotor activities and as the dose increases, it decreases the rhythmic activity of the animals and causes rhythm disturbance.

LITERATURE

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