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**Mice as a Model of Human being In
Studying Mood Disorders (Anxiety and
Depression)**

A thesis presented by

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For the degree of

Ph.D. in Veterinary Medicine Science

(Animal Behaviour and Management)

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بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

﴿وَمَا مِنْ دَابَّةٍ فِي الْأَرْضِ وَلَا طَائِرٍ يَطِيرُ بِجَنَاحَيْهِ إِلَّا أُمَمٌ

أَمْثَلُكُمْ مَا فَرَّطْنَا فِي الْكِتَابِ مِنْ شَيْءٍ ثُمَّ إِلَىٰ رَبِّهِمْ

يُحْشَرُونَ﴾

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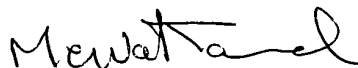
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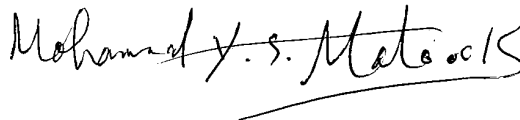
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Abstract

Depression is one of the world's greatest public health problems. It has been demonstrated that stressful life events result in a failure in stress coping strategies in laboratory rodents including mice. Unpredictable chronic mild stress (UCMS) has been shown as an appropriate tool for modeling depression due to presence of important symptom (anhedonia) and the neurobiological changes that lead to depression. This dissertation was therefore carried out to design and verify the efficacy of unpredictable chronic mild stress as a model of depression and assess the efficacy of St. John's wort (SJW) as antidepressant. 160 adult *swiss albino* mice of both sexes were housed in groups of five in either control group, control + saline, UCMS, UCMS+fluoxetine (FLX) and UCMS+ SJW. UCMS groups was exposed to different stressors in a chronic, mild and an unpredictable way for 8 consecutive weeks and injection regime was carried out in the 3rd week in control+vehicle, UCMS +FLX and UCMS+SJW until beginning of behavioural tests at the 6th week. Body weight and body coat were assessed. Elevated plus maze, open field test, sucrose consumption test, reward maze test, splash test and forced swim test were conducted. Plasma corticosterone and brain stem levels of dopamine and 5-OH were measured. Histopathological sections of hippocampus and cerebral cortex were taken. UCMS mice of both sexes displayed a reduction in body weight, a deterioration in body coat, and a decreased sucrose consumption, while an increase in the latency to pass 1st gate of the reward maze apparatus and in the latency to chew cookie. UCMS mice also showed a tendency of being in the closed arm of the elevated plus maze for longer duration compared to mice in the control group. UCMS mice showed a tendency of being immobile in forced swim test and exhibited also higher levels of plasma corticosterone and lower brain stem levels of both dopamine and 5-OHT compared to other groups. SJW showed a moderate antidepressant effect compared to FLX. It therefore appears that the presence of anhedonia, the hallmark of depression along with the significant neurobiological changes in the brain strongly support the efficacy of UCMS as a model of depression in human being.

Key words : Mice- Depression – Anhedonia –Antidepressant – Saint Jhon`s Wort - Fluoxetine- Serotonin – Forced swim test– Corticosterone-Unpredictable chronic mild stress – Sucrose consumption test- Hippocampus.

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