

## News &amp; Comments

## Eucalyptus Globulus Leaf Oil in Rats and Its Psychopharmacological Effects

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Stress is distinguished as a significant emotional change that disrupts the creature's homeostasis and stability. Deafening noise, a big crowd, and an unruly setting are examples of physical stressors that can produce stress. Various syndromes are brought on by stress, perplexity in behaviour, fear, sadness and other disorders. Stress can cause symptoms including high blood pressure, upper body pain, upset stomach, asthma, arthritis, diarrhoea, and constipation. Stress and stress-related disorientation are contributing factors to sickness today and may be the cause of up to 75% of all diseases. There are two types of stress: eustress and distress. Good stress is eustress. A live being must do their duties without suffering physical or emotional harm.

From the collection of essential oils, the sensitivity of animal usage, and the utilization of the highest quality chemicals to proceed through the ethical committee, all the required norms were followed. The first test was the "Tail suspension test" where the animals were given at least 1-2 hrs to get used to the lab. Using sticky tape positioned about one centimetre from the tip of the tail, each animal was individually balanced to the edge of the bench, 50 cm off the ground. The observer noted the animals' immobility in response to a medical procedure that the research animals were accustomed to.

The second test was the "Anoxia stress tolerance test" where five groups of animals were formed, and the medication activity was administered every day for a total of 21 days. The animal was displaying anoxia tolerance time at the end of the week, or the first, second, and third weeks following drug therapy. To induce anoxia stress, a hermetic container with a 1 L air capacity was used.

The rats in the eucalyptus oil group did not exhibit any toxicity throughout the 14-day observation period, following OECD guideline 423 for acute oral toxicity at a dose of 2000 mg kg<sup>-1</sup>. At the dose level that was examined, the survivor rat did not show any unfavourable clinical signs. All the animals that were treated appeared normal and exhibited no unusual behaviour. They all breathed in the same manner. Convulsions, sedation, and lacrimation symptoms were minimal.

In Organ weight observation, the amount of bodily water had an impact on the weights of the major organs. The weights of the kidneys (0.35 0.09-0.33 0.08 g), liver (0.92 0.05-2.95 0.08) g, heart (0.36 0.05-0.35 0.06 g), lungs (0.96 0.18-0.86 0.12 g), spleen (0.24 0.05- 0.26 0.04 g), brain (1.01 0.24-0.86 0.15 g), and testicles (0.37 0.006-0.14 0.008 g) did not alter significantly after. Analysis of haematological data: The values of lymphocytes dropped, although the alterations were not statistically significant. The



organs of the animals fed *Eucalyptus globulus* leaf oil at a dose of 2000 mg kg<sup>-1</sup> did not differ in colour from those of the control group. After the experimentation stage, histopathological examination of the liver, kidney, lungs, heart, brain, and spleen from both the control and treated rats revealed no evident abnormalities.

**Rear Suspension** In a test stress model, which is a behavioural paradigm frequently used to identify antistress activity in rats, each animal was separately suspended 50 cm from the floor from the edge of the table using adhesive tape placed 1 cm from the tip of the tail. Mean+SEM calculations were used to determine the results of the anoxia stress tolerance test. On the seventh, fourteenth, and twenty-first days, anoxia stress tolerance times were significantly (p 0.05) extended in the EOE (400 mg kg<sup>-1</sup>) and Diazepam (1 mg kg<sup>-1</sup>) treated groups. Anoxia tolerance time increased after the second and third weeks of EOE (200 mg kg<sup>-1</sup>) therapy, but the seventh-day result was not statistically significant.

The finding suggests that the intervals of inactivity were drastically cut down. Animals treated with diazepam (1 mg kg<sup>-1</sup>) as expected exhibit a significant reduction in immobility time.

#### **JOURNAL REFERENCE**

Afzal, M., I. Kazmi, S.I. Alzarea, K.K. Sharma and C.K. Dubey *et al.*, 2022. Acute toxicity studies and psychopharmacological effects of *Eucalyptus globulus* leaf oil in rodents. *Int. J. Pharmacol.*, 18: 673-681.

#### **KEYWORDS**

Stress, eucalyptus oil, acute toxicity, immobility, FST, AST, TST, immobility.

