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Assessment of Anti-Depressant Activity of *Anisochilus Petraeus* Leaves in Swiss Albino Mice

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Abstract
Introduction: One of the main causes of morbidity and mortality is depression. Over 350 million people worldwide, across all age groups, suffer from depression. It contributes significantly to the burden of diseases worldwide. **Aim:** This study was designed to evaluate for anti-depressant activity of the indigenous medicinal plant *Anisochilus petraeus*. **Result**: A stronger inhibition comparable to the standard was observed with an APEM higher dose of 500 mg/kg of the test medication. The conventional model had the highest locomotion rate (85.6%), which was followed by 74% for APEM 400 mg/kg, 24.9 % for APEM, and 14.30% for /kg in the FST model. Greater locomotion was observed at the 400 mg/kg test drug dose, which was comparable to the control and standard. **Conclusion:** According to the study's findings, oral APDM can effectively provide observed antidepressant-like effects.
Keywords: Depression, Anisochilus petraeus, Locomotor activity, Imipramine.

Introduction:
Herbal remedies have been used for as long as human civilization has existed. Long before the Christian era began, the plants were part of the conventional systems of health care utilized in China, India, Egypt, and Greece. Even now, the Indian medical system serves an important portion of the country's population. Even though many synthetic medications are the go-to therapy for individuals with clinical depression, these medications frequently have side effects that can undermine the therapeutic approach. These side effects consist of fatigue, dry mouth, gastrointestinal orcardiac arrhythmias, agitation, drowsiness, anxiety, and respiratory issues. Moreover, there may be other drug-drug interactions. These factors make it possible to treat depression in an alternate manner by using medicinal plants. Depression is a primary factor contributing to morbidity. and death as all synthetic medications available for the treatment of depression have a variety of side effects linked to harmful interactions.Over 350 million people worldwide, across all age groups, suffer from depression. It contributes significantly to the burden of diseases worldwide.The *Anisochilus* genus has been shown to have antidepressant properties in certain investigations.

Aim:

This study was designed to evaluate pharmacological, toxicological, and phytochemical analyses of the indigenous medicinal plant *Anisochilus petraeus* for anti-depressant activity.

Methodology:

Achankovil, Kerala was the source of some of the plant material that was collected, shade-dried in the sun, and verified by a botanist. Use a mixer to create a coarse powder. We used Swiss albino mice weighing 20 to 25g. Mice in the experimental groups were given an oral (p. o.) dose of *anisochilus petraeus* ethanolic extract at a dose of 2000mg/kg, in contrast, the animals in the control group received regular saline via the same channels. Oral imipramine (15 mg/kg) was given. Every medication was made afresh prior to each trial[84-89]. The extract doses were determined so that each 100 g mice would get 1 ml of the extract suspension. The process was carried out in accordance with OECD/423 standards (OECD/OCDE, 2002). The dosage of the extract was 2000mg/kg of body weight when taken orally. For fourteen days, mice were maintained under observation in order to record any potential "death.

Plant Profile:

Anisochilus petraeus grows among rocks in grass-dominated dry deciduous forests in the Achankovil valley of the southern Western Ghats at" 95–98 meters above sea level.

Figure 1: *Anisochilus petraeus leaves* and flowers plant

Result:

FT-IR Spectroscopic Analysis

The absorptionbands observed at 3315.6 in APDM are caused by the –OH stretching vibration of alcohols, polyhydroxy, or phenols substances. A –C=C– in ketone compounds may be the cause of the peakat 1638 cm^{-1}. Tertiary alcohol or phenols are responsible for the peak at 1389.6, and the phosphate ion of phosphate compounds may be responsible for the absorption band at 1054.9cm^{-1}. It is displayed in Figure 2.

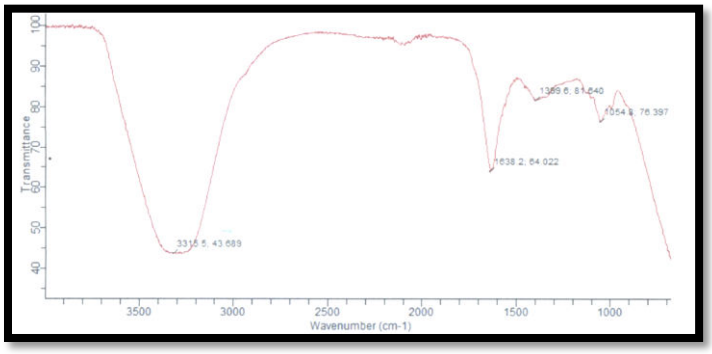

Figure 2: FT-IR Spectrum of APEM

Immobility of Mice (FST)

Anisochilus petraeus ethanolic extract, employing the Forced Swim Test (FST) as well as the Tail Suspension Test (TST) on mice, different doses of leaves were utilized to produce a novel substance against depression. When compared to the animal immobility percentages of the APEM 200 mg/kg and APEM 400mg/kg treated groups (67.11 and 74.53), the immobility percentage of the standard drug administered group (88.81%) was significantly higher. Although APDM demonstrated a dose-dependent effect, 400 mg/kg of extract exhibited more antidepressant properties than 200 mg/kg. Which is displayed in Table 1.

Table 1: Immobility of Mice (TST)

S. No	Groups	Body Weight	Dose (mg / Kg)	Duration of Immobility	
				% of Activity	(Seconds)
1	Control	22.7±2.95	0.5% CMC	------	426.5±1.02
2	Positive Control	18±1.0	30	88.59	48.66±1.01**
3	APEM (400mg/kg)	19.6±1.04	400	82.133	76.2±2.06**
4	APEM (200mg/Kg)	18.6±0.7	200	70.03	127.8 ± 3.01***

*P <0.05, **P<0.01, ***P<0.001, Significantly Different From Control

Locomotor activity in Mice

The locomotor"activity demonstrated a difference in movement between the Imipramine and different dosages of APEM groups. In the FST model, locomotion was highest (85.6%) for the standard, followed by 74% for APEM 400mg/kg, 24.9 % for APEM, and 200 mg/kg for 14.30% for /kg.Greater locomotion similar to control and standard was observed at the higher 400 mg/kg dose of the test medication. It was provided in Figures 3 "and 4.

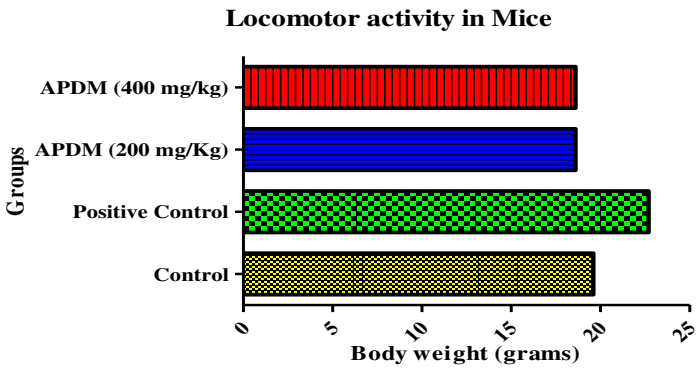

Figure 3:Locomotor activity in mice

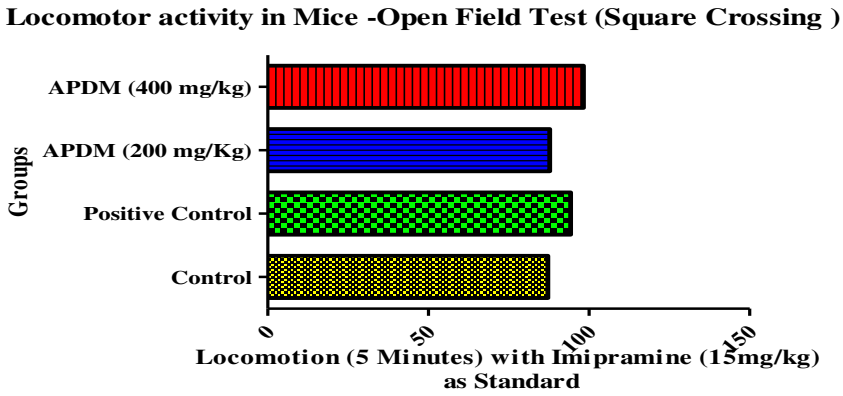

Figure 4: Locomotor activity in Mice – Open Field Test (square Crossing)

The present" investigation has discovered that injection of APDM might normalize behavioral, biogenic amines, homocysteine, neurocytokine, and monoamines changes generated by swimming stress. These results verified that the APDM had antidepressant-like effects via neurochemical and homocysteine band neurocytokine pathways. Although most people consider that traditional medicine is useful, in addition, the molecular targets and active principles of these treatments are fully understood. As a result, knowledge of the active ingredients and their modes of action can help to improve acceptance of these treatments.

Conclusion:

APDM has a particular antidepressant-like effect on stressed mice. The immobility duration in the TST and FST was decreased by APDM. For the first time to our knowledge, the results presented here demonstrate that oral APDM is beneficial in inducing significant antidepressant-like effects as assessed by the TST as well as FST. Stimulants, as opposed to antidepressants, produce noticeable motor stimulation in both tests, making antidepressants and stimulants distinct from one another.

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