MOVEMENT OF ANTI-DEPRESSANT ACTION OF NEOLAMARCKIA CADAMBA FRUIT ABSTRACTION

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Abstract
Neolamarckia cadamba has strong Anti-oxidant, Anti-fungal, Anti-helminthic, Anti-bacterial properties. It plays a vital role in changing mental disorders like depression. To evaluate in vivo anti-depressant effect of ethanol excerpt of Neolamarckia cadamba fruit in Swiss albino rats. For this N. cadamba was chopped, shade dried, pulverized with the help of electric mixer and were extracted by a continuous hot percolation method by using soxhalation apparatus. And for in vivo anthelmintic activity, ethanol and aqueous extract were prepared by soxhalation apparatus with dried powder of N. cadamba. The excerpt was exposed to phytochemical screening surveyed by oral toxicity educations in rats. In vitro experiments were done to determine anti-oxidant properties N. cadamba extracts, the anti depressant activities of aqueous and ethanol extract of N. cadamba were evaluated in rat models of depressions. Animals were divided into four sets (6 animals per set). Set 1 is served as a controller set, Set 2 served as a standard drug (fluoxetine 4 mg/ml ) respectively. Set 3 was given ethanolic fruit extract of N. cadamba orally at low dose of 40 mg/kg respectively. Set 4 were given fruit extraction of N. cadamba orally at high dose 80 mg/kg respectively. Following 14 days of dilute dosing, all animals were tested using behavioural of depression on 15th day by utilizing locomotor activity test, pole climbing apparatus, and tail suspension tests. And for in vivo anti-helminthic activity, ethanol and aqueous extract of Neolamarckia cadamba were given to 9 sets of pheretima posthumous earthworms with different concentrations. In locomotor activity, the low dose ethanolic extract gives the efficient therapeutic activity when compared to high dose. In Pole climbing test and tail suspension test, high dose of ethanol fruit extract of N. cadamba shows efficient activity. In anthelmintic activity, ethanol extract of N. cadamba shows better therapeutic activity than the aqueous.

Keywords: Anti-depressant activity, Cadamba fruit, Neurological disorder, Locomotive activity, pole climbing test, tail suspension test.

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1 Introduction
Neolamarckia cadamba fruit is the deciduous tree is an average estimation for achieving the height of 20-30 m to 2-3 m with barrel shaped branches and adjusted crown. It is often discovered all over India by evergreen timberlands up to 500 m. It is found in sub-Himalayan area and Nepal eastwards on lower slopes of Darjeeling in West Bengal where it is normal; in Chota Nagpur (Bihar) and Andhra Pradesh. In the Andaman's, it is regular in soggy spots along huge streams in Kerala on the west coast, and western ghats at low level in wet spots [1]. It is likewise disseminated in
Thailand and east-west in Malaysian archipelago to Papua New Guinea. The bark of the plant is accounted for to have tonic, sharp, sweet, astringent, febrifugal, mitigating, stomach related, carminative, diuretic, expectorant and antiemetic properties and is given to treat the fever and irritation. The blossoms are utilized as vegetable. The leaves are marginally fragrant with horrendous yet the decoction of leaves useful for ulcers, wounds, and metorrhea. It is valuable in the treatment of snake-nibble. It is frequently use as powder (kvatha churna) which is a home grown plan. Neolamarkia Cadamba is an early progression species which develops best on profound, soggy, alluvial destinations, frequently in auxiliary backwoods along riverbanks and in the momentary zone among damp, for all time overwhelmed and intermittently overflowed territories. Local scope of Cadamba is Australia, China, India, Indonesia, Malaysia, Papua New Guinea, Philippines, Singapore, Vietnam and Maharashtra [2-3].

**Aim of the study:** Neolamarkia cadamba plays a vital role in changing mental disorders like depression. To evaluate in vivo anti-depressant effect of ethanolic excerpt of *Neolamarckia cadamba* fruit in swiss albino rats. For this *N.cadamba* was chopped, shade dried, pulverized with the help of electric mixer and were extracted by a continuous hot percolation method by using soxhalation apparatus. And for in vivo anthelmintic activity, ethanolic and aqueous extract were prepared by soxhalation apparatus with dried powder of *N. cadamba*. The excerpt was exposed to phytochemical screening surveyed by oral toxicity educations in rats.

**DEPRESSION**

Depression is a clearly neurological disorder described by unsettling influences in rest and craving just as deficiency in cognizance and energy. The term melancholy would itself be able to be a deceptive everybody life will encounter modification in mind-set. Sorrow can be conceivably dangerous condition that has an impact of millions of individuals over the globe. The particular indications display as an exchange shapes that incorporate low or discouraged mind-set "anhedonia" (decreased capacity to encounter regular rewards) and low energy or exhaustion³. The patients become ongoing and following 5-10 years of potential development around 7-12% of them separately are as yet discouraged. State of mind issues are the subsequent essential driver for incapacity and driving reason for years lived with handicap in all the age bunches on the planet. The disposition becomes raised and touchy this might be an indication of "Lunacy". The term insanity is utilized to portray extreme cases oftentimes connected with mental manifestations. Hypo madness depicts less extreme type of the problem. In clinical practice this differentiation frequently gets obscured with hypomania being viewed as patients create or recuperate from lunacy [4].

**METHODS**

1. **Locomotors Activity**

The locomotors action was estimated by utilizing Act photometer. Six lights and six photocells were put in the external fringe of the base so that a solitary rodent can impede just one shaft. The development of the creature intrudes on a light emission falling on a photocell, at which a tally was estimated for a time of 10 min. actually its guideline is that, a photocell is actuated when the beams of light falling on the photocells are cutoff by creatures crossing the light emission [6]. As the photocell initiated, a tally is recorded. The photocells are associated with an electronic programmed tallying gadget which tallies the quantity of "cut off".

2. **Post Climbing Test**

Cook's post climbing contraption (5) use to consider intellectual capacity, basically a reaction to adapted boosts during learning and its retension. The mechanical assembly has a test chamber (25*25*25 cm) with the floor network in a soundproof walled in area. Mixed stun (6mA) is conveyed to the lattice floor of the chamber made out of treated steel bars. A shaft, 2.5 cm in measurement, hangs inside the chamber through an opening in the upper focus of the chamber. The examination rodent was set in the chamber and permitted it for 45 seconds. molded improvement (CS) i.e bell signal was turned on and unconditioned boost (US) i.e. electric stun conveyed through network floor for 45
sec. creature figured out how to relate the buzzer12 with the approaching foot stun by climbing the post after bell signal. Avoidance reaction was characterized as climbing response time <10 sec only [8].

3. Tail Suspension Test (TST)

In tail suspension test (4), the creatures were hanging by the tail on a plastic string 50 cm over the surface by assistance of sticky tape, set around 1 cm since the tip of the tail. Every creature under test was mutually acoustically and outwardly disconnected since different creatures during the test. The span of idleness was watched for a time of 8 minutes. The term of stability is verified throughout the most recent 6 minutes of the perception time frame. Mice are viewed as stable just when they hang inactively and were totally unmoving. The test was directed in a faint lit room and each rodent was utilized just a single time in the test [9].

Statistical examination

All consequences were connected as mean ± standard mistake of mean (S.E.M). Information was investigated utilizing one way ANOVO and two way rehashed measures followed by Turkeys various examinations and understudies unpaired t test utilizing diagram cushion crystal factual programming P<0.001 was considered as measurably important [10].

Table 1. Consequence of Neolamarckiacadamba on immobility time in the tail suspension test using rats

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Treatment</th>
<th>immobility time (in sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Control</td>
<td>46 ±1.22</td>
</tr>
<tr>
<td>2</td>
<td>Standard (fluoxetine) 4 mg/kg</td>
<td>50 ±1.28</td>
</tr>
<tr>
<td>3</td>
<td>Low dose 40 mg/kg</td>
<td>48 ±1.29</td>
</tr>
<tr>
<td>4</td>
<td>High dose 80 mg/kg</td>
<td>80 ±1.24*</td>
</tr>
</tbody>
</table>

* indicates the level of consequence value P < 0.05. The high dose of N. cadamba shows the better significant value than the standard.

Table 2. Effect of Neolamarckiacadamba on pole climbing test using rats

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Treatment</th>
<th>POLE CLIMBING TEST DURATION TIME (in sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Control</td>
<td>8 ±2.32</td>
</tr>
<tr>
<td>2</td>
<td>Standard (fluoxetine) 4 mg/kg</td>
<td>12 ±2.38</td>
</tr>
<tr>
<td>3</td>
<td>Low dose 40 mg/kg</td>
<td>10 ±1.99</td>
</tr>
<tr>
<td>4</td>
<td>High dose 80 mg/kg</td>
<td>17 ±2.48*</td>
</tr>
</tbody>
</table>

* indicates the level of consequence value P < 0.05. The high dose of N. cadamba shows the better significant value than the standard.

Table 3. Effect of Neolamarckiacadamba on Locomotor activity test using rats

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Treatment</th>
<th>NO.OF PHOTOCELL CUT OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Control</td>
<td>70 ±2.32</td>
</tr>
<tr>
<td>2</td>
<td>Standard (fluoxetine) 4 mg/kg</td>
<td>74 ±1.38</td>
</tr>
<tr>
<td>3</td>
<td>Low dose 40 mg/kg</td>
<td>81 ±3.39*</td>
</tr>
<tr>
<td>4</td>
<td>High dose 80 mg/kg</td>
<td>68 ±2.41</td>
</tr>
</tbody>
</table>
* indicates the level of consequence value $P < 0.05$. The low dose of *N. cadamba* shows the better significant value than the standard.

**Figure 1.** Consequence of Neolamarckiacadamba on Tail suspension test (TST)

**Figure 2.** Consequence of Neolamarckiacadamba on Pole climbing test

**Figure 3.** Effect of Neolamarckiacadamba on Locomotor activity
Discussion

In the current examination energizer impact of Neolamarckia cadamba organic product remove have been contemplated. The ethanol extract [8] for this plant indicated that it has stimulant movement. Concentrate was discovered to be sheltered no mortality was watched following treatment with portions as high as 80 mg/kg. This incited use to assess it further, utilizing standards of melancholy models. In light of these necessities, we chose 3 social depression models specifically TST, Cook’s post climbing and Locomotor movement in rodents’ 11. In the TST, rodents are postponed by their tails for a characterized timeframe and their stability was surveyed. Intense organization of most antidepressants diminishes fixed status time in TST From the above results, the Low dose (40mg/kg) gives efficient therapeutic activity when compared to the high dose (80mg/kg) of Neolamarckia cadamba ethanol fruit extract.

Conclusion

It is concluded that, Neolamarckia cadamba ethanol fruit extract was reported to possess, Anti depressant property; Neolamarckia cadamba might be a successful and adequate option for the treatment of uneasiness and melancholy conditions. By and large consequences of the current examination exhibited that N. cadamba concentrate gives best option for keeping up the uneasiness and misery circumstances. This Revisions principal the end that the home grown concentrate of N. cadamba organic product extricates is discovered to be strong and safe. Anyway explanation of careful instrument of activity and advantageous impacts of these definitions needs further examination. More randomized controlled preliminaries in enormous patient populaces must be completed before deciding the status of these medications in the treatment of concern and unhappiness.

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