Evaluation of Anti-Depressant Activity of Hydro Alcoholic Extract of Triticum Aestivum

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ABSTRACT
The present study was designed to screen anti-depressant activity of Hydro alcoholic extract of Triticum Aestivum using Chronic models (14 day study) of Tail suspension test (TST) and Forced Swim Test (FST) in Swiss Albino rats. Wheat grass were collected and authenticated. Extraction of dried wheat grass was carried out using a Soxhlet apparatus to obtain its Hydro alcoholic extract. The extract of Triticum Aestivum showed the significant anti-depressant activity comparable to the standard drug. The oral administration of Triticum Aestivum extract at doses 200 mg/kg & 400 mg/kg respectively as compared to the control treated group showed an anti-depressant activity comparable to that of standard drug. The anti-depressant effects of Triticum Aestivum extract seem to be mainly associated with the activation of dopaminergic system and possess potential anti-depressant activity.

Keywords: Anti-Depressant, Triticum Aestivum, serotonin re uptake inhibitors

INTRODUCTION
Depression is a heterogeneous disorder that affects a person’s mood, physical health and behaviour. Anti-depressant drugs such as tricyclic anti-depressants and selective serotonin re uptake inhibitors (SSRI) are used to treat depression showing various side effects and thus, the search for a new anti-depressant without side effects is deemed important.

OBJECTIVES: Triticum Aestivum (Poaceae), commonly known as wheat grass, has pharmacological diversities as anti-cancer, antioxidant, antifungal and anti-hyperglycemic activities. In continuation of our research on Triticum Aestivum, we have investigated the probable mechanisms of anti-depressant-like activity of Triticum Aestivum in behavioural models of depression using laboratory rats, for the management of depressive orders.

EXPERIMENTAL METHODS

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PROCEDURES

**ACUTE DERMAL TOXICITY - FIXED DOSE PROCEDURE:**

The acute dermal toxicity study was carried out in adult female albino rats by ‘fix dose’ method of OECD (Organisation for economic cooperation & development) guideline no. 434 at dose levels 200-2000mg/kg.

**FORCED SWIM TEST (FST):** Behavioural despair was proposed as a model to test antidepressant activity by Porsolt et.al. rats were forced to swim individually in glass jar (25*12*25 cm$^3$) containing fresh water of 15cm height, after an initial 2 minute period of vigorous activity, each animal assumed a typical Immobile posture$^1$.

**TAIL SUSPENSION TEST (TST):** Rats were suspended on the edge of a table 75cm above the floor by adhesive tape placed approximately 1cm from tip of the tail. Immobility time was recorded during a 6 min period, when it did not show any movement of the body and hanged passively$^2$.

**RESULTS AND DISCUSSION**

Triticum Aestivum (200& 400 mg/kg) significantly (p<0.01) and dose dependently decreased the Immobility time as compared to control rats (table1). The extent at the dose of 400 mg/kg showed the almost same activity as Imipramine (p<0.01), in decreasing Immobility period. It has been argued that the TST is less stressful than FST and has greater pharmacological sensitivity$^3$. Remarkably, TST detects the anti-Immobility effects of a wide array of anti-depressants TCA, SSRI, MAOI, electro convulsive shock and even atypical antidepressants. Thus, the activity of Triticum Aestivum could involve one of the mechanisms for the established agents as described above.

**TABLE1:** Effect of Triticum Aestivum on duration of Immobility time in the Chronic Study (14days) of tail suspension test (TST) and forced swim test (FST) using rats.

<table>
<thead>
<tr>
<th>GROUP</th>
<th>DOSE (mg/kg)</th>
<th>TST DURATION OF IMMOBILITY (s)</th>
<th>FST DURATION OF IMMOBILITY (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1% Gum Acacia</td>
<td>(10ml/kg)</td>
<td>181.5±4.82</td>
<td>166.5±2.76</td>
</tr>
<tr>
<td>Triticum Aestivum 200</td>
<td></td>
<td>149.3±2.73**</td>
<td>143.8±1.62*</td>
</tr>
<tr>
<td>Triticum Aestivum 400</td>
<td></td>
<td>132.2±0.46**</td>
<td>120.2±0.30**</td>
</tr>
<tr>
<td>Imipramine</td>
<td>10</td>
<td>130.3±4.15**</td>
<td>117.3±1.55**</td>
</tr>
</tbody>
</table>

Values represented: Mean±SEM (n=6), $^*P<0.05$, $^{**}P<0.01$ vs..control.

**CONCLUSION**

From the above valuable animal study, we conclude that the plant extract Triticum Aestivum show a significant anti-depressant activity in Tail Suspension Test(TST) and Forced Swim Test(FST) models of depression. Thus, we can say that Triticum Aestivum significantly reduces the Immobility Period in both Tail Suspension Test (TST) and Forced Swim Test (FST).

**REFERENCES**