

TRIBULUS TERRESTRIS ANTIDEPRESSANT EFFECT IN OPEN FIELD TEST IN NMRI MICE

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ABSTRACT

To assess *Tribulus terrestris* antidepressant effect in open field study test. This observational study was conducted in Pharmacology Department, Pharmacy College, Hamdard University, Karachi between January 2016 and June 2016. Seeds have been obtained from *Tribulus terrestris* and confirmed in the Faculty of Eastern Medicine, Hamdard University, Karachi. The air-dried seeds were melted into powder and 1,000 g then filtered utilizing cotton fleece and the Whatman filtering paper # 01, were soaked for 72 hours in 1 liter of 50% methanol, then thickened with evaporation by rotatory evaporator. The yield rate was 45.12 g of dried concentrate of 1000 g of dried pummeled seeds. The light brown color extract obtained was taken naturally every day of the study and divided into Tween 80 (vehicle) by up to 5%. The *Tribulus terrestris* Methanolic extract (MeTt) has been used between the Tween 80 (Sigma-Aldrich, Denmark), Diazepam, Buspirone. Thirty NMRI mice were randomly divided into six groups (n=5) in each of the models envisaged. Two control systems (vehicle and standard medicine) were combined and four medication collections were divided separately in levels of 50, 100 and 200 mg / kg. This study shows an antidepressant effect of *Tribulus terrestris* on the open field test in mice. One-way ANOVA has shown significant major effect on number of squares crossed (F=11.0, df = 3, 20 and P<0.01) and open field rearing (F=22.2, df=3.20, and P<0.01). The Newman keul's strategy showed that the Post Hock relationship had 100 mg / kg of *Tribulus terrestris* seeds with a remarkable impact on the square sum crossed in the peripheral region, while the open field raising had a slight anxiolytic effect with a measure of 200 mg / kg. This study, conducted a T-test (two tailed) on the inclination of the region in the open field test. MeTt delayed idleness with respect to control animals at a dose of 100mg / kg fundamentally (p>0.005). At the same MeTt measurement test, the animals treated with diazepam and buspirone (1mg/kg) have been found to be non-essentially unique. The results show that *Tribulus terrestris* acts as an antidepressant and can be studied in the future as a possible therapeutic antidepressant.

Key Words: *Tribulus terrestris*, open field test, antidepressant.

INTRODUCTION

Tribulus terrestris usually grows in Europe, Asia, America, Africa and Australia in hot atmospheric districts (Frohne, 1999). In Asia it is usually used as a diuretic because it contains tannins, vitamins, fats (unsaturated), gums etc. (Yan *et al.*, 1996). It is often used to

treat heart, renal, asthma, tumor, joint problems and rhinorrhea as part of natural medicaments. This has antibacterial, malignancy preventing and detoxifying impacts (Firas *et al.*, 2008; Kianbakht *et al.*, 2003; Kadry *et al.*, 2010; Puri, 1971; Nikolov, 2004). In 2000, the anti-tumor activity of *Tribulus terrestris* was observed by

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Xu and Coworkers (XU *et al.*, 2000). Anxiety is the global problem. Pharmacotherapeutically active drugs like Amytriptylin, Fluoxetine, Phenelzine, Selegilin (antidepressants) and many other; Aprazolam, Diazepam, Lorazepam (benzodiazepines); and Buspirone (anxiolytic) known to be the first line treatment. Nonetheless, these drugs are considered unsafe and for side effects have been reported. A bizarre, problematic psychological issue / problem requires a very positive reaction to clinical observatory considerations. To survey to detect uneasiness, the open field test has prescient legitimacy furthermore, can in like manner be used to screen novel blends with anxiolytic receptor instruments. The research focuses primarily on the identification of molecular/biological processes influencing cerebral signals. Focal neural transmitters are involved in the pathophysiology of pain such as commotion. The larger part of current medication is affected by the monoaminergic mechanisms of disease targets. The exam requirements existed to prove that decision-making between two courses of action was possible. This has led to the establishment of pharmacokinetic studies in the regulation of passionate behavior to identify and determine the receptors (Hill *et al.*, 2009; GorZalka *et al.*, 2011; Bambico *et al.*, 2008).

MATERIALS AND METHODS

Plant Collections and Verification

Tribulus terrestris seeds were collected from the Center for Horticulture's principal campus area of University, Hamdard University, Karachi, and the plant material was confirmed by ??????????

Extraction:

The seeds that had been air-dried were powdered. 1 kg of powder soaked for 72 hours in 1000 ml of 5% methanol. Seeds were tapped / moved multiple times by using the rotary evaporators using cotton wool and Whatman Filter Paper # 01. From the 1000 g dried pounded seeds, this rate was 45.12 g extract. The light brown concentrates were

acquired each day of the exam at 5% Tween 80 (vehicle) and were freshly separated.

Animals

NMRI Mice (30-35 g) of both genders were collected from Dr. HMI's Animal House in Pharmacology, University of Hamdard, and were maintained at room temperature within a plastic environment. They were fed organic rodent pellets and commercial libitium routinely. The animals were kept for a total of one week before they were used for research.

Experimental Design

In this experiment, 30 mouse groups were randomly selected (n=5) for six sets. Two control systems: (i) vehicle and (ii) standard medicines; and three drug clusters were used in five sets exclusively for estimations of 50, 100, and 200 mg/kg.

RESULTS AND DISCUSSION

The findings were processed and checked with the SPSS 20.0. Information is collected after regular distribution and discrepancies in the samples have been analyzed by the use of ANOVA. The action of *Tribulus terrestris* seeds on squares crossed by fringe area CF= (11.0df, 3,20, and P<0.01) and in the open field (F=22.2, df=3,20 and P<0.01) was demonstrated by the ANOVA. The Post Hock Comparison by Newman's Kewl method has shown that *Tribulus terrestris* seeds of 100 mg / kg have a more lifting effect on the number of squares crossed on the margins and the rise in an open-field test and the calculation of 200 mg / kg has a less anxious impact. Evidence from conventionality and homogeneity have been analyzed in animal collection.

For the investigation of zone execution e.g. open field movement monitoring, T-tests (two tailed) were carried out. Regularly circulating data were analyzed through a paired t-test at constant intervals. sMeTt usually has delayed inactivity with control animals at 1000 mg/kg measurement (P>0.005).

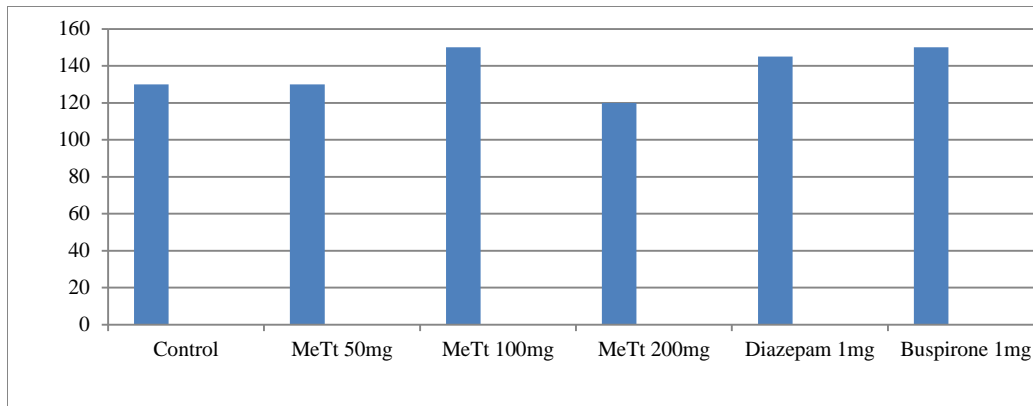


Fig. 1: Control, methanolic extract of *Tribulus terrestris* on dose 50, 100 and 200mg / kg with reference drug i.e. Diazepam and Buspirone. Effects of *Tribulus terrestris* extract on open field.

Bar outline shows conduct of mice with control (mean ± SEM). Qualities are Mean ± SEM (n=30) Notable contrast by Newman's keul's test. P* $<$ 0.01, P* $<$ 0.05 concerning water treated mice taking after restricted ANOVA. Estimations of Diazepam and Buspirone were analyzed by t-test with respect to water were discovered powerful P* $<$ 0.0.

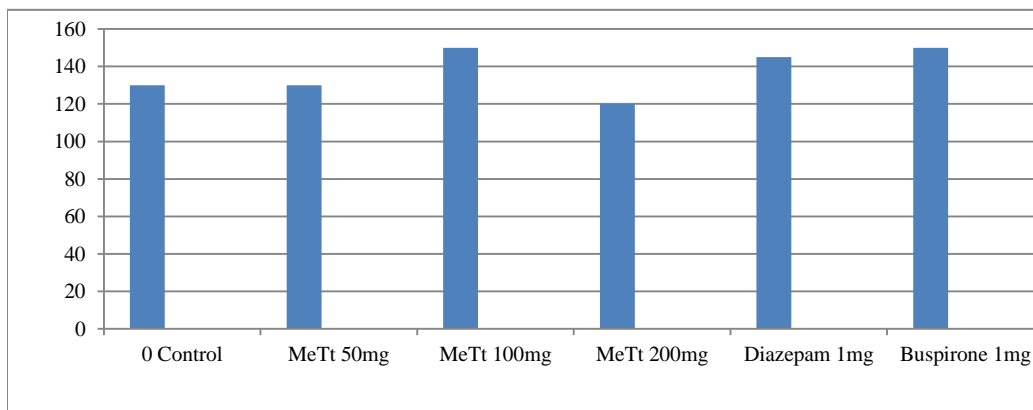


Fig. 2: Control, methanolic extract of *Tribulus terrestris* on dose 50, 100 and 200mg / kg with reference drug i.e. Diazepam and Buspirone. Effect of *Tribulus terrestris* on the rearing in the open field.

Bar graph showed conduct of mice with control (mean ± SEM). Values were mean ± SEM (n=30). Noteworthy contrast by Newman's keul's test was seen. P* $<$ 0.01, P* $<$ 0.05 as for water treated mice taking after one-way ANOVA. Estimations of Diazepam and Buspirone were contrasted by t-test with deference with water were discovered outstanding P* $<$ 0.01.

Table 1: Drugs with dosages.

Open Field	<i>Tribulus Terrestris</i>				One -way ANOVA	Diazepam 1mg/kg	Buspirone 1g/kg
	Control 0mg/kg	50mg/kg	100mg/kg	200mg/kg			
(a) No. of Squares Crossed in the Peripheral area	87.1± 2.3	73.5±10.3	95± 8.2*	64±14.0	F=11.0 P<0.01	96±22.0*	83±15.9*
(b) Rearing	11.6±5.4	16.6±4.0	39.6±5.1*	39.3±5.7	F=22.2 P<0.01	46.5±7.6*	31.3±4.9*

Findings were mean + SEM (n=30). Notable difference by Newmen's Keul's test *P $<$ 0.01, *P $<$ 0.005 as for their water treated mice taking after One-way ANOVA. Estimations of diazepam and Buspirone were contrasted by t-test with deference with water was remarkable P* $<$ 0.01.

The number of passages on light territory shows the animals treated with Me Tt as for control animals, but the time and amounts spent by treated animals in relation to Diazepam and Buspirone were not entirely unique (1mg/kg).

When animals are left in a new area, they display odd and vigorous behavior on repeated attempts at open field contraction resulting in changes in behavior in time (Blanchard *et al.*, 2001). Mice and rodents have more apprehension-related practices (e.g. stretching and movement in open field corners and dividers) (Bolivar *et al.*, 2000; Carrey *et al.*, 2000). To determine this characteristic behavior, this open field test is built up (Espejo, 1997). An open field is a sensitive test for anxiety. In this study, the action of mice (i.e., raising the lines, and square motion control) is unmistakably controlled.

Mice were first infused with *Tribulus terrestris* extract (MeTt) and set in holding pens for 10 minutes when placed in the open field, show expanded motion while others suggested habituation and decreased action levels of behavior, with others showing no change (Jahkel *et al.*, 2000). The quantity of squares was counted after a 10 minutes check. They stayed on one square for 10 minutes and every mice secured in 10 minutes after testing the number of squares. The amounts of squares were tested before the end of a 10-minute test period. Unconstrained square count was used as an anxiolytic drug effect for mice. This method is however also useful in stimulant mixtures (Lister, 1990). If the anxiety respond of an animal is expected, evacuate it or escape the target, i.e. stop or escape. When squares are unlikely to talk of an unwelcome jolt, a mice may decide to avoid boost with the door open. Brain signaling studies in individuals are mostly consistent with preclinical discoveries and recommend that signals are essential to anxiety and sentiments management among individuals. Legitimate brain signaling is associated with decreased anxiety and nervousness in all studies while preventing flagging is related to greater notable impotence

to drive, discomfort and melancholy (Ramos *et al.*, 1997; Walsh *et al.*, 1976).

It is, however, still in progress to overcome the psychological pressures of individuals; however, a combination of point by point of preclinical and clinical findings strongly recommends that this should be a field of research that is focused over the years (Prut *et al.*, 2003; Ramos, 2008; Carola *et al.*, 2002). There are expanded research ranges that help fill the gaps with information and help analysts to channelize the valuable utility of the open field test in enhancing the innovative treatment option for anxiety disorders (Stanford, 2007). In present research work, the number of squares crossed (Bouwknicht *et al.*, 2008) that suggested the anxiolytic effect of *Tribulus terrestris* was reduced by pre-treated *Tribulus terrestris* seeds (Lister, 1990).

This data shows that assessments have precious validity and models are now being used in order to check for more anxiety components.

CONCLUSION

Open field behavior is a reliable indication of a nervous decrease and the present study demonstrates *Tribulus terrestris* anxiolytic effect in NMRI mice.

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