

Pharmacological Evaluation of Anxiolytic Activities of *Plecranthus Amboinicus* and *Trigonella Foenum Graecum* (Methi Seeds)

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ABSTRACT

A herb from the Lamiac family, *Plecranthus amboinicus* is a natural component of the tropics and warm parts of Africa, Asia and Australia. *Trigonella fenum-graecum* (Aromatic Leguminous Plant) is a significant spice that is utilised for traditional foods, medicines, and flavouring additions in food and beverages for aromatic leguminous plants. This plant has medicinal and nutritional properties, which owing to natural phytochemical components are of major relevance in the pharmaceutical field. They are often used in folk medicine to heal illnesses including coldness, asthma, constipation, headache, cough, fever and skin problems. The literature review indicated that 76 volatile and 30 non-volatile compounds have been presented in several categories of plant chemicals, including monoterpenoids, diterpenoids, triterpenoids, sesquiterpenoids, phenolics, flavonoids, esters, alcohols, and aldehydes. Several pharmacological features have been described, which include antibacterial, anti-inflammatory, anticancer, injury treatment, anti-epileptic, cardiovascular and antioxidant and analgesic activity. Respiratory, cardiovascular, dental, skin, digestive and urinary problems have been proven to be beneficial. But it would be appreciated to validate scientifically many other traditional uses especially to identify and authenticate new bioactive substances. This paper permits researchers to examine the potential for several biological uses of this multi-use plant.

keywords: *trigonella foenum graecum*, methi seeds, *plecranthus amboinicus*, medicinal plant, pharmacology

INTRODUCTION

Medicinal plants are regarded as a chemical factory since they contain many chemical.¹ The chemical makeup of herbal medications is increasing today. Ingredients such as alkaloid, glycoide, saponin, resin, oleoresin, sesquiterpene, and oils. Natural goods have less negative effects and are more dependable than their synthetic equivalents. Currently, herbal medications are extensively used in different public health practices worldwide since they are safe and cost-effective, fighting numerous deaths and helping to keep good health effectively.² Currently, natural goods are regarded by pharmaceutical companies as an important source of medicines and thus are widely employed. In the contemporary period of natural health this has led to growing worldwide demand for medicinal plants leading to the Extraction for their therapeutic properties of novel plant resources.^{3,4,5,6}

Anxiety is an abnormal emotional condition in which the feeling of terror is unlike the nature of the risk. In response to threatened situations, an emotional stress that implies behaving, expression and physiological characters like avoiding the source of danger and assuming defensive positions and increasing blood pressure accompanies the emotional feeling that constitutes the subjective characteristic of anguish.⁷ Anxiety is an emotionally justified reaction to a threat. This emotion is regarded a disease inadequate, severe and persistent. In some mental disease, anxiety is involved: depression, panic, phobia, widespread fear, obsessive compulsive disorder and post-traumatic stress.⁸

CAUSES OF ANXIETY

Anxiety may be induced by or in conjunction with a mental health condition, physical condition, medication effects. The first duty of the doctor is to check whether your worry is a sign of another ailment.^{9,10}

MATERIAL USED

Trigonella foenum-graecum seeds and Leaves Of Plectranthus Amboinicus were collected. Methanol, n-butanol, and toluene were purchased from Modem Scientific, Nashik. Tween 80 etc.

Instrument used

- Oral Feeding Needle

- Electronic Weighing Balance
- Stop Watch

Preparation of extract

The soxhlet extractor crushed into a coarse powder one kilogramme of *trigonella foenum-graecum* grains and degraded with petroleum ether (65°-85°C). The acquired mark was methanol removed. Methanol minerals (ME) have been divided into acetone soluble fractions (0.90% yield) and acetone insoluble fractions (4.90% yield).^{11,12}

Plectranthus amboinicus alcoholic concentrate was allowed to dry in the shade at room temperature, pounded and with 95% ethanol, 100g of raw powder was fully extricated at 45-650 C and in Soxhlet extractor. concentrate was collected and desiccated over sodium sulfite using a rotating evaporator.¹³

ANIMALS

Male Albino Mice (22-25 gm) were grouped into five at ambient temperatures of 25±1° C, while Wistar Rats (200-250 gm) were grouped into two at ambient temperatures of 25±1° C. They were grouped into two. Free access to food and water was available to animals (Hindustan Lever, India). Four hours before all acute trials, animals were deprived of food but not water. During light period all experiments were performed (08:00-16:00 h). All experimental experiments have been approved by the Institutional Animal Ethical Committee.^{14,15}

The above extracts and fractions were subjected to the following acute models of anxiety based on exploratory behaviour.

Elevated plus maze

Two open arms (25x5 cm) bridged by two closed arms were part of the elevated plus labyrinth (EPM) (25 x 5 x 20 cm). The arms were attached to a centre 5 × 5 centimetre square. The device was raised to 25 cm in height (Lister, 1987). For 30 minutes, diazepam (10 mg/kg) or ME (200.250 mg/kg) was administered by vehicles in groups of 5, before placing them in the middle of the plus-maze separately. The time that was spent in open arms, open and closed arms was recorded for 5 minutes.¹⁶

Light/ Dark Apparatus test

The mechanical assembly comprises 2 compartments for Light-Dark Transition Test (i.e. Light and dim). Open fields have unpleasant characteristics that suppress explosive behaviour of rats, while BZD produce aid of exploratory behaviour. Four behavioural characteristics, that is to say the number of crossings between light and dull box, duration spent in light and dim box and inactive exchange were observed in this model. Reason and reasoning technique Dim/light box (or dark/white box) consists of a slight unpleasant and a slight aversive bay. Dim is litter than light in a unique setting.¹⁷

Open field apparatus test

This test was first presented by Broadhurst in 1969 and is designed to respond in the face of unease by exposing animals with a relatively new, steady, and light-emergent outdoor habitat. This test was initially proposed by Broadhurst in 1969. Kulkarni and Dandiya's 1972 open-field contraction consists of a circular stadium with light and sound sources. Pets are placed in a circular contraction coliseum individually. When creatures travel from one segment to the next, an ambulatory score is recorded (straightforward stereotyping). In addition, a rising (complex stereotypy) score is recorded whether creature persists on rear appendages with or without support of the spinner. In addition, pee and faeces are seen. The combination of drugs following CNS altering open-field behaviour in rats is taken into consideration.¹⁸

Hole board apparatus

Boissier et al (1964) and Simon have undertaken to evaluate particular elements of mice's behaviour, such as interest or exploration. They have been using wide fields with spaces that animals may jump into. Nose to gap is the frequent behaviour of mice which shows some curiosity. It has shown quite useful to evaluate this behaviour section. BZD's tend to inhibit nose jabbing on low measures generally. Reason and foundation The evaluation of particular behavioural mixtures of mice such as curiosity or research used open fields with base gaps, in which the animals were able to chuckle nose. Row ding behaviour in rats as a measure of anxiety has been reported. The Gap Board Test has proven to be an extremely perceived test for anxiolytic drugs. BDZ anxiolytics increase the quantity and duration spent in head sinking, whereas anxiolytics impact the contrary behaviour. This test is fast and includes several preference models to assess anxiety in contrast to alternative models. This test examined the transport of narcotics.¹⁹

RESULT AND DISCUSSION

Table 9. Phytochemical Screening Of Alcoholic Extracts Of Plectranthus Amboinicus And Trigonellafoenum- Graecum.

S.NO	PHYTOCONSTITUENTS	TRIGONELLAFOENUM- GRAECUM	PLECTRANTHUS AMBOINICUS
1.	Carbohydrates	+	+
2.	Tannins and Phenolics	-	+
3.	Amino acids and Proteins	+	+
4.	Flavonoids	+	+
5.	Saponins	-	+
6.	Fixed oils and Fats	-	+
7.	Alkaloids	+	+
8.	Glycosides	+	+
9.	Phytosterols	+	+

Trigonellafoenum- graecum

(ME- Methanolic extract of fenugreek seeds; vehicle- distilled water)

Table 1. Elevated Plus Maze

Group no	Treatment	Dose (mg/kg)	number of entries (mean±sem)		Time spent in sec (mean±sem)	
			OPEN ARM	CLOSE ARM	OPEN ARM	CLOSE ARM
1.	Control	10 g	6.50±0.248 7	5.666 ±0.241	37.666±1.308	190.833 ±3.049
2.	Diazepam	10	6.966±0.41	9.9	81.333± 0.25	129.66±2.390

			24	± 0.435		
3.	METHANOL Extract 1	200	7.566 ± 0.23 46	10.5 ± 0.421	45.00 ± 13	147.166 ± 1.701
4.	METHANOL Extract 1	250	11.50 ± 0.24 22	8.786 ± 0.563	60.00 ± 508	78.833 ± 9

Table 2. Light/Dark test

GROUP NO	Treatment	Dose (mg/kg)	Time spent in min (Mean $\pm$ SEM)		Number of Entries (Mean $\pm$ SEM)	
			DARK	LIGHT	DARK	LIGHT
1.	Control	10 g	6.990 ± 0.34	7.565 ± 0.356	35.566 ± 1.308	189.933 ± 3.049
2.	Diazepam	10	6.956 ± 0.14	9.995 ± 0.284	80.333 ± 0.25	127.56 ± 1.2
3.	METHANOL Extract 1	200	7.999 ± 0.224	8.231 ± 0.616	46.00 ± 13	146.466 ± 6.21
4.	METHANOL Extract 1	250	11.99 ± 0.265	7.041 ± 0.432	59.90 ± 508	78.533 ± 4

Table 3. Open field apparatus test

GROUP NO	Treatment	Dose (mg/kg)	Ambulation (N)	Activity in Centre (N)	Rearing (N)	Fecal dropping (N)
1.	Control	10 g	31.56 ± 1.342	5.62 ± 0.2340	$5.653 \pm$ 0.3896	$1.987 \pm$ 0.3653
2.	Diazepam	10	40.931 ± 1.378	7.453 ± 0.4346	2.4 ± 0.4333	$2.054 \pm$ 0.3463
3.	Alcholic Extract 1	200	34.90 ± 1.124	6.916 ± 0.3073	5.003 ± 0.7585	$1.501 \pm$ 0.4253

4.	Alcoholic Extract 2	250	49.90± 1.21	10.00±0.5645	3.060±0.4545	1.500± 0.6542
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Table 4. Hole Board Apparatus

GROUP NO	Treatment	Dose (mg/kg)	No. of head dipping	Line crossing
1.	Control	1	21.999± 0.566	65.166± 1.447
2.	Diazepam	10	652.5± 0.465	41.333± 0.08198
3.	Alcoholic Extract 1	200	34.6± 0.211	53.833± 1.014
4.	Alcoholic Extract 1	250	66.164± 1.0456	48.833± 0.8333

Plectranthus Amboinicus

(AE- alcoholic Extract Of Plectranthus Amboinicus; Vehicle- Distilled Water)

TABLE 5 : Effect Of Alcoholic Extract On Rats (Elevated Plus Maze)

GROUP NO	Treatment	Dose (mg/kg)	Number of entries (mean±SEM)		Time spent in sec (mean±SEM)	
			OPEN ARM	CLOSE ARM	OPEN ARM	CLOSE ARM
1.	Control	10 g	7.00±0.2582	6.666 ±0.3333	37.666±1.308	190.833 ±3.049
2.	Diazepam	10	7.166±0.4014	10.5 ±0.4282	81.333± 0.25	129.66±2.390
3.	Alcoholic Extract 1	200	8.666±0.2108	9.333 ±0.421616	45.00±13	147.166±1.701
4.	Alcoholic Extract 1	250	12.00±0.2582	6.666 ±0.3333	60.00±.508	78.833±9

TABLE 6 : Effect Of Alcoholic Extract On Rats (Light dark Test)

GROUP NO	Treatment	Dose (mg/kg)	Time spent in min (Mean±SEM)		Time spent in sec (mean±SEM)	
			DARK	LIGHT	DARK	LIGHT
1.	Control	10 g	7.50±0.8645	.64 ±0.3333	36.999±1.308	178.845 ±4.065
2.	Diazepam	10	6.924±0.2354	10.5 ±0.4282	81.333± 0.25	112.56±2.390
3.	Alcoholic Extract 1	200	9.054±0.2658	8.991 ±0.421616	45.05±363	19.966±1.701
4.	Alcoholic Extract 1	250	11.948±0.1956	7.054 ±0.3333	59.90±.468	78.653±982

TABLE 7. Effect Of Alcoholic Extract On Rats (Open field apparatus test)

GROUP NO	Treatment	Dose (mg/kg)	Ambulation (N)	Activity in Centre (N)	Rearing (N)	Fecal dropping (N)
1.	Control	10 g	32.16±1.352	6.66±0.3333	2.167±0.3073	2.966±0.324
2.	Diazepam	10	41.333±1.308	7.333±0.4216	3.167±0.3073	1.516±0.365
3.	Alcoholic Extract 1	200	50.0± 1.317	9.5±0.428	2.50±0.3416	2.50±0.3416
4.	Alcoholic Extract 1	250	70.66±1.282	14.66±0.802	3.33±0.3333	1.50± 0.2512

TABLE 8. Effect Of Alcoholic Extract On Rats (Hole Board test)

GROUP NO	Treatment	Dose (mg/kg)	No. of head dipping	Line crossing
1.	Control	10	7.00±0.2582	9.686±1.308

2.	Diazepam	10	30.00±1.065	15.333± 0.25
3.	Alcoholic Extract 1	200	21.45± 1.186	20.90±13
4.	Alcoholic Extract 1	250	24.65± 1.177	23.05±.508

CONCLUSION

The present study shows that that alkaloid and saponin containing ethyl acetate fraction (EAF) and methanolic fraction (MF) of methanol extract of *Trigonella foenum-graecum* seeds and *Plectranthus amboinicus* possess anxiolytic activity. Present investigation was intended to uncover anxiolytic action of *Trigonella foenum graecum* (seeds) and Alcoholic concentrate of *Plectranthus amboinicus* in swiss pale skinned person mice utilizing five creature models of nervousness specifically, Elevate in addition to labyrinth, Light dull test, Hole board test and Open field test. The information got was agreeable and indisputable so as and to achieve our goals. All in all current information demonstrate that administration of EAF/MF to mice shown anxiolytic movement supporting society data with respect to anxiolytic properties of *Trigonella foenum graecum* and *Plectranthus amboinicus*. Quality control of helpful plant things by using progressed methodology by applying appropriate boundaries stards to ensure quality control of remedial plant things we need to know phytochemical constituents alongside pharmacological exercises of isolated blends of therapeutic plants To appropriateness with any monograph stard, there is prerequisite for fitting insightful methodologies for choosing character, quality, relative force using these blends.

ACKNOWLEDGEMENT

I am thankful to the management of sambhunath institute of pharmacy, Praygraj for providing best lab facilities necessary for completion of my research. All of the writers named contributed considerably to the production of this article and all the authors listed contributed significantly to the development and writing.

CONFLICT OF INTEREST.

The authors declare no conflict of interest.

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