Central Nervous System Depressant Activity of *Wedelia trilobata* Leaves

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Wedelia trilobata L. Hitche (Asteraceae) is a dwarf shrub, about 60 cm in height. Leaves are obovate to obovate-lanceolate, 7-8 cm long. Flowers are yellow, tubular in terminal or axillary head, 4-5 cm in diameter.[1] Six new acylated eudesmanolides, a diterpene wedelia-seco-kaurenolide, germacrene, α-humulene, caryophyllene, phellandrene, *p*-cymene, sitosterol and ent-kaurenic acid were also isolated. [2] Nirmal *et al.*[3] reported α-pinene (78.64%), germacrene D (3.91%) and d-limonene (2.97%) in volatile oil obtained from the leaves which showed significant antimicrobial activity. Coe *et al.*[4] reported that fruits, leaves and stem are used in childbirth and in the treatment of bites and stings, fever and infection. Also leaves are used in the treatment of kidney dysfunctioning, cold, wounds, snakebite and amenorrhea[5]. Taddei *et al.*[6] reported antibacterial activity of aerial part against *B. subtilis* and *S. aeruginosa*. Since detailed investigations of CNS depressant activity have not been carried out so far, the present study on the evaluation of *in vivo* CNS depressant activity of the various extracts of leaves of *W. trilobata* was under taken.

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Leaves of *W. trilobata* were collected in August 2005 from Ahmednagar district of Maharashtra, India and authenticated by Botanical Survey of India, Pune (Voucher specimen No. VDTI). Leaves were shade dried, powdered and subjected (400 g) to successive solvent extraction using solvents as petroleum ether (60-80°C) (PCL, Pune), chloroform A.R. (PCL, Pune), ethyl acetate A.R. (PCL, Pune) and methanol A.R. (PCL, Pune) in Soxhlet extractor to produce PEE (14% w/w), CE (12% w/w), EAE (10% w/w) and ME (15% w/w), respectively. Extracts thus obtained were concentrated by using rotary vaporator and dried at room temperature. Extracts obtained were used for pharmacological screening.

White albino mice (Swiss-webstar strain, 20-25 g body weight) were used for the experiments. The animals were provided with standard laboratory food and tap water *ad libitum* and maintained at natural day night cycle. All the experiments were conducted on an isolated and noiseless condition.

In case of pentobarbitone-induced sleeping time,[7] the test animals were divided into five groups (n=6). First group (control) received vehicle only (distilled water containing 0.1% DMF). Second to fifth groups received PEE, CE, EAE and ME (30 mg/kg, i.p., each) 30 min before administration of pentobarbitone sodium (Samarth pharma) in a dose of 40 mg/kg, intraperitoneally and duration of sleep was measured. The sleeping time was measured as the duration for which the righting reflex was lost.

However, in locomotor activity testing, Animals were divided into six groups (n = 6). First group (control) received vehicle only (distilled water containing 0.1% DMF). Second group received diazepam (Prem pharma Ltd) in a dose of 2 mg/kg, intraperitoneally. Third to sixth groups received PEE, CE, EAE and ME (50 mg/kg, i.p., each). Mice were placed individually in photoactometer. Basal reaction time was noted before and 30 min after the administration of treatment. A count is recorded when the beam of light falling on the photocell of photoactometer is cut off by mice as method carried out by Turner.[8]

As per the results noted in Table 1, PEE potentiated pentobarbitone sodium induced sleeping time in mice than other extracts. Results in Table 2 revealed that in the animal treated with PEE showed reduction in the locomotor activity scores was more significant than that of standard drug diazepam and other extract.

Table1. Effect of various extract of *Wedelia trilobata* leaves on pentobarbitone- induced sleeping time.

Treatment (Dose: mg/kg, i.p.)	Duration of sleep (min)	% increase in sleeping time
Vehicle	42 ± 1.756	-
PEE (30)	107 ± 0.654*	255
CE (30)	89 ± 0.345*	212
EAE (30)	84 ± 2.684*	200
ME (30)	70 ± 1.395	167

All the values are expressed as mean ± SEM; n = 6*, P < 0.05, significant compared to control.

Table 2. Effect of various extract of *Wedelia trilobata* leaves on locomotor activity in mice.

Treatment (Dose:mg/kg, i.p.)	Number of movements (for 2 min)	
	Before administration of drug	After 30 min of administration of treatment
Vehicle	92.43 ± 0.828	95.95 ± 0.423
Diazepam (2)	87.8 ± 0.524	55 ± 0.563*
PEE (50)	88.6 ± 0.345	38.4 ± 0.382*
CE (50)	79.8 ± 0.923	42.8 ± 0.244*
EAE (50)	84 ± 0.654	49 ± 0.375*
ME (50)	82.8 ± 0.346	41.5 ± 0.185*

All the values are expressed as mean ± SEM; n = 6*, P < 0.05, significant compared to control.

The CNS depressants induce sedation, hypnosis and reduce the locomotor activity in the experimental animals. Prolongation of sleeping time in pentobarbitoneinduced sleeping time test is may be because of enhancement in brain GABA as it is known to have depression action in brain as reported by Iwama *et a1.*[9] In locomotor activity testing, decrease in rearing along with locomotor activity is observed, that reveals depressive effect on CNS as reported by Leewanich *et al.*[10] Overall we can say that PEE is having good CNS depressant activity.

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