



ANTIDEPRESSANT LIKE ACTIVITY OF MADHUCA LONGIFOLIA IN RAT MODEL

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ABSTRACT

Depression is state of low mood and aversion to activity which affect a person's thoughts, behavior, feelings and sense of well-being". Its characterization done by change in mood, lack of interest in the surroundings, psychomotor retardation. In the present study Antidepressant Like Activity of *Madhuca longifolia* In Rat Model was studied using Forced Swim test model. In the present study, Methanolic extract of *Madhuca longifolia* (MEML) was evaluated by using various experimental models. MEML at doses of 750 mg/kg, p.o showed significant increase in the motor activity of mice which elevate depressed mood by decreasing immobility time of rats in Forced Swim Test.

Keywords: - Antidepressant activity, *Madhuca longifolia*, Forced swim test medicine

SHORT COMMUNICATION

Depression is state of low mood and aversion to activity which affect a person's thoughts, behavior, feelings and sense of well-being". Its characterization done by change in mood, lack of interest in the surroundings, psychomotor retardation. On surveying of the World Health report (Abbey LR *et al*, 2008), there are almost 450 million people suffering from a mental or behavioral disorder. This burdens to the 12.3% on the global state of disease, and may be rise to 15% by 2020 (Reynolds EH *et al*, 2005). Psychiatric illness is common with suicide and there are between 10 and 20 million suicide attempts every year. Depression generally considered as most prevalent mental disorder. The disorder characterization done by signs of apathy, loss of energy, retardation of thinking and activity, despair and suicidal ideation. Beside these standard drugs available in market like tricyclic antidepressants, selective reversible inhibitors of monoamine oxidase-A (MAO-A), selective serotonin reuptake inhibitors (SSRIs) and selective nor adrenaline reuptake inhibitors (SNRIs) (Thase *et al*, 1995). Neuroscience provide the promise to be developing our understanding of disease pathophysiology give idea about novel mechanisms which targeted by more effective pharmacotherapies and searching of herbal sources of drugs. Many scientists are planning to study the antidepressant activity by using the nutraceuticals like probiotics, it may include lactobacillus. These microbes are used previously for antioxidant and anticancer activity.

The leaves part of *Madhuca longifolia* (Moha) was collected from local distributor in Yavatmal, Maharashtra, in the month of November. Toxicity studies of extract were carried out in Balb/c mice weighing between 25-30g. Four groups of mice comprising three animals each were treated with 5, 50, 300 and 1000mg/kg of the extract orally, via gastric catheter.

All the animals were fasted for 3 hrs prior to oral administration of vehicle/standard/test compound. The basal rectal temperature was measured by inserting an electronic thermometer to a constant depth of 3 cm.

Forced Swim Test:

Table1 : Effect of *Madhuca longifolia* on immobility time in forced swim test in rats

Group	Immobility Time (Mean \pm SEM); N=5			
	30min	60min	120min	240min
Control	246.2 \pm 1.685	260.8 \pm 1.020	265.2 \pm 1.497	268.4 \pm 1.720
Fluoxetine (10 mg/kg,p.o)	197.6 \pm 1.166**	204.8 \pm 1.855**	204.8 \pm 1.020**	201.6 \pm 0.748**
MEML	239.4 \pm 1.327 [#]	252.8 \pm 1.020 [#]	258.8 \pm 1.020 [#]	201.6 \pm 1.66 [#]

(75 mg/kg,p.o)				
MEML (350 mg/kg,p.o)	218.6±0.748**	212.2±2.375**	211.6±1.720**	209.6±1.720**
MEML (750 mg/kg,p.o)	196±4.243**	215.2±3.826**	208.2±2.653**	204.8±2.417**

[Results were analyzed by one-way ANOVA using Dunnett's multiple comparison test; Significance at **p < 0.01, *p<0.05 Non Significance (#) at p >0.05 Vs control.]

Scoring of ptosis in mice is as follows:

Normal – 0; 1/4 th closed eyes – 1; 1/2 closed eyes – 2; ¾ th closed eyes – 3; Fully closed eyes–4. The LD50 of madhuca longifolia found 1000 mg/kg.

Forced Swim Test:

In this test, animals treated with three doses of MEML (75mg, 350mg and 750mg/kg, i.p) showed decreases in their immobility times, which was significant respectively; p<0.01).

In the present study, Methanolic extract of *Madhuca longifolia* (MEML) was evaluated by using various experimental models. MEML at doses of 750 mg/kg, p.o showed significant increase in the motor activity of mice which elevate depressed mood by decreasing immobility time of rats in Forced Swim Test.

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