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Antipsychotic Activity of *Catunargaom Spinosa (Thumb.)*

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ABSTRACT

Catunargaom spinosa (Thumb.) tirveng herb widely distributed throughout India. The aim of present study undertaken was to determine the antipsychotic activity of dried fruits of *Catunargaom spinosa (Thumb.)* was extracted using ethanol. The extract was investigated for preliminary phytochemical constituents which exhibit saponin, carbohydrate, flavonoides and tannins. Amphetamine is used to produce psychosis and Haloperidol is used as standard drug. Also the evaluation test such as determination of total ash value, extractive value, moisture or loss on drying, and finally determination of foreign organic matter. These evaluations are useful to determine quality and purity of crude drug.

Keywords: *Catunargaom Spinosa (Thunb.)*, Compulsive behavior test, Antipsychotic activity, Haloperidol

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INTRODUCTION

Psychotic disorders are a group of serious illnesses that affect the mind. These illnesses alter a person's ability to think clearly, make good judgments, respond emotionally, communicate effectively, understand reality and behave appropriately. When symptoms are severe, people with psychotic disorders have difficulty staying in touch with reality and often are unable to meet the ordinary demands of daily life. To treat psychosis antipsychotic agents are used. Symptoms vary from person to person and may change over time. The major symptoms of psychotic disorders are hallucinations and delusions. Disorganized or incoherent speech**,** confused thinking**,** strange, possibly dangerous behavior**,** slowed or unusual movements, loss of interest in personal hygiene**,** loss of interest in activities**,** problems at school or work and with relationships**,** cold, detached manner with the inability to express emotion**,** mood swings or other mood symptoms, such as depression [1].

To treat psychosis antipsychotic agents are used. Antipsychotics (also called neuroleptics) a first generation of antipsychotics, known as antipsychotics, while second generation, known as atypical antipsychotics. The typical antipsychotics are classified according to their chemical structure while the atypical antipsychotics are classified according to their pharmacological properties. These include serotonin-dopamine antagonists, multi-acting receptor-targeted antipsychotics, and dopamine partial agonists, which are often categorized as atypicals. Typical antipsychotics are also sometimes referred to as the major tranquilizers [2, 3] common antipsychotic drug are haloperidol, promazine, chlorpromazine, etc. Although atypical antipsychotics are generally considered to be more effective and to have reduced side-effects compared to typical antipsychotics [4]. All antipsychotic drugs tend to block D_2 receptors in the dopamine pathways of the brain. This means that dopamine released in these pathways has less effect. Excess release of dopamine in the mesolimbic pathway has been linked to psychotic experiences. It is the blockade of dopamine receptors in this pathway that is thought to control psychotic experiences [5]. High-potency antipsychotics such as haloperidol, in general, have doses of a few milligrams and cause less sleepiness and calming effects than low-potency antipsychotics such as chlorpromazine and thioridazine, which have dosages of several hundred milligrams. Atypical antipsychotic drugs have a similar blocking effect on D_2 receptors. Some also block or partially block serotonin receptors (particularly $5HT_{2A,}$ and $5HT_{1A}$ receptors) ranging from risperidone, which acts overwhelmingly on serotonin receptors, to amisulpride, which has no serotonergic activity. The additional effects on serotonin receptors may be why some of them can benefit the 'negative symptoms' of schizophrenia**.**

MATERIAL AND METHOD

Plant collection and Authentication

The fruits of Catunargaom Spinosa were collected during December from Mahabaleshwar, Wai, Dist: Satara, and were identify by Government of India, Ministry of

environment and forest, BOTANICAL SURVEY OF INDIA, Officer of join director, Western circle, 7, Koregaon road, Pune 411001. (V. No. - REECASP1).

Plant preparation and extraction [6]

The Fruits were dried in sunlight and reduced to a coarse powder. Then the powder was subjected to maceration with ethanol for 72 hours at a temperature of 50-60ºC. The extract was concentrated and the solvent was completely removed. They were freeze dried and stored in the vacuum desiccators until further use. Placed the solid material with whole menstrum in close vessel and allowed to stand for 7 days with occasional shaking. Strained and mixed the liquid obtained and clarified by subsidence or filtration process.

This process is normally used for the preparation of tincture or extract and menstrum is usually alcoholic, hydrochloric (in case of tincture) or may be aqueous. Drug is kept with the menstrum for a long a period. The process is carried out at ambient temperature. At the end of process the mark is either pressed or menstrum is decanted depending upon the nature of drug.

Antipsychotic study of *Catunargaom spinosa (Thumb). tirveng* by Compulsive behavior test

The antipsychotic activity of ethanolic extract was performed using Compulsive behavior test. Weighed and number the animals. Divided them into three groups, each group comprising of five animals. Injected amphetamine to five animals and placed them individually into separate beaker and observed. Note the onset and intensity of rearing, sniffing and licking behavior at time 0, 15, and 30 min after amphetamine .The severity of the response can be scored as + = presence, + + = moderately severe, and + + + = intense and continuous action. Calculated cumulative scored at each time interval. To the second group injected *Catunargaom spinosa* and 30 min later injected amphetamines these animal. Placed them in individually beakers and score calculate cumulative score at each time interval. To the third group inject Haloperidol and 30 min later inject amphetamines to these animal. Placed them in individually beakers and scored as calculated cumulative score at each time interval. Compared the action of amphetamine in normal and haloperidol and *Catunargaom spinosa* [7].

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RESULTS

Table No. 1: Antipsychotic activity of ethanolic extract of *Catunargaom spinosa (Thunb.)* and comparison with standard antipsychotic (Haloperidol)

Treatments (Dose mg/kg)	Severity of responses min								
	Rearing			Sniffing			Licking		
	0	15	30	0	15	30	0	15	30
Amphetamine (2mg/kg)	1.28±0.34	15.67±0.21	9.45±0.25	0.89±0.21	16.78±1.09	8.23±0.22	2.12±0.90	19.23±1.09	7.21±0.32
Haloperidol (3mg/kg) +Amphetamine	0.98±0.93	6.78±1.39	2.77±0.88	0.12±0.23	7.21±0.47	4.20±1.20	0.87±0.67	12.98±0.74	3.09±0.11
Extract (400mg/kg) + Amphetamine	1.20±0.23	3.81±1.09	2.00±0.10*	0.54±0.22**	2.98±0.85**	1.78±0.65**	0.61±0.34	5.14±0.51**	1.23±0.10***

The result of the ethanolic fruit extract and comparison with standard antipsychotic haloperidol explained in following Table No.1. Powder drug shows the following values after its proximate analysis or evaluation test. Phytochemical screening of fruit extract of Catunargaom spinosa shows presence of carbohydrate, saponine, flavonoids.

Also some proximal analysis shows the following results,

1) Total ash value-7%
2) Loss on drying-0.15g
3) Extractive value-0.0192g
4) Foreign organic matter-920g

DISCUSSION

The result of present study indicates that ethanol extract of *Catunargaom spinosa (Thunb)*, possess antipsychotic activity in mice. Over secretion of dopamine in Mesolimbic pathway causes psychosis occur after administration of Amphetamine. Our study shows that ethanolic extract of Fruits of *Catunargaom spinosa (Thunb.)* protected some of the animals against the psychosis induced by amphetamine and lowers the rate of Sniffing, Licking, and Rearing.
In the present study psychosis is produced in all animals by using Amphetamine and Antipsychotic drug like Haloperidol was used to block Psychosis which decreases dopamine level.

Preliminary phytochemical investigations reveal the presence of alkaloids, flavonoids, proteins, carbohydrates, amino acids, tannins and phenolics. Finally, the ethanolic extract of. *Catunargaom spinosa (Thunb)* induced effective dose (ED_{50}) in mice when administered orally

at doses 400 mg/kg. Some evaluation test like ash value, extractive value, loss on drying, foreign organic matter, they may help to determine the quality and purity of crude drug, also ash contain inorganic radical like phosphates, carbonates and silicates of sodium, potassium, magnesium, calcium etc. Extractive of plant may help for evaluation of the crude drug and also gives the idea about nature of chemical constituent present in the crude drug and the finally determination of foreign organic matter may help to identify the following substance,

a) Material not coming from the original plant source.
b) Insects, Moulds or other animal contamination.
. c) Any other organs than those named in the definition and description.

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