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Evaluation of Anti-Parkinson Activity of Lemon Grass

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ABSTRACT:
The present study was carried out to evaluate anti-parkinson activity of ethanolic extract of lemon grass in haloperidol induced experimental animal model by using block method .catalepsy was induced by the intraperitoneal administration of haloperidol at a dose 2 mg/kg body weight by using the 6 rats. all behavioral parameters were assessed by using block method .the cataleptic score was significantly (3.5)found to be reduced with the ethanolic extract of lemon grass .the ethanolic extract of lemon grass is having significant activity in the treatment of Parkinson inhibit haloperidol-induced catalepsy .our result suggest anti-parkinson activity of lemon grass is due to its anti- cataleptic responcesi.e due to the presence of citral (lemonal) constituents.

KEYWORDS: Lemon grass, Anti-Parkinson activity, Haloperidol induced animal model, A.N.O.V.A Test

I. INTRODUCTION:

Parkinson's disease (PD) is a degenerative disorder of the central nervous system. It was first described in 1817 by James Parkinson, a British physician who published a paper on what he called "the shaking palsy." In this paper, he described the major signs and symptoms of the disease that would later bear his name. Research suggests at least 500,000 people in the United States currently have PD, although some estimates are much higher. Society pays an enormous price for PD. The total cost to the nation is estimated to exceed $6 billion annually. Parkinson's disease belongs to a group of conditions called movement disorders. The four main symptoms are tremor, or trembling in hands, arms, legs, jaw, or head; rigidity, or stiffness of the limbs and trunk; bradykinesia, or slowness of movement; and postural instability, or impaired balance. These symptoms usually begin gradually and worsen with time. As they become more pronounced, patients may have difficulty walking, talking, or completing other simple tasks. Not everyone with one or more of these symptoms has PD, as the symptoms appear in other diseases as well. PD is both chronic, meaning it persists over a long period of time, and progressive, meaning its symptoms grow worse over time. Unlike measles, you cannot catch Parkinson's disease from someone else. Although some cases of PD are hereditary and can be traced to specific genetic mutations, most cases are sporadic—that is, the disease does not typically run in families. PD likely results from a combination of genetic susceptibility and exposure to one or more environmental factors that trigger the disease. PD is the most common form of parkinsonism, the name for a group of disorders with similar features and symptoms. PD is also called idiopathic PD. The term idiopathic means a disorder for which no cause has been found. While most forms of parkinsonism are idiopathic, there are some cases where the cause is known or suspected or where the symptoms result from another disorder.

II. MATERIAL AND METHODS:

Plant material:

The leaves of lemon grass were collected from market. It is cultivated in farms.Lemongrass is a plant that is commonly used in Asian cuisine but which may provide therapeutic and medical benefits. Easily available from any ethnic store, health food store. By using the dried leaves steeped to make a ethanolic extract.

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Extraction:

The lemon grass extract is prepared by using solvent ethanol.75 gm powder of lemon grass is soaked in 175 ml ethanol. and allow to soak for five days then remove the liquid extract from the crude drug .

Drying:

The collected ethanolic extract was drying by using rotary evapourator. The ethanolic extract was evapourated under 40^0 c temperature by using rotary evapourator.

Animals:

The experimentation was carried out by using adult albino rats. Weighing between 150-250 gmwere obtained from P.D.V.V.P.F's college of pharmacy, Vilad Ghat Ahmednagar, Maharashtra. They were maintained at standard housing conditions and fed with commercial diet and provided with water ad labitum during experiment. The institutional animal ethics committee (1670/PO/a/12/CPCSEA) permitted the study.

III. EXPERIMENTATION:

Sr no	animal for testing	Drug	Body wt	Dose
1	Normal	Distilled water	215 gm	0.1ml
2	Negative control	haloperidol	170 gm	0.15 ml
3	Positive control	l dopa+haloperidol	162 gm	20.25mg+0.16ml
4	Test 1	Test drug+haloeridol	200 gm	200mg+0.2ml
5	Test 2	Test drug+haloperidol	150 gm	400mg+0.15
6	Test 3	Test drug +haloperidol	180 gm	600mg+0.18ml

Albino rats are divided in groups of six each. They were administered haloperidol in –ve control to induce catatonia in positive control the catatonic symptoms are significantly inhibited by levopa. In the test drugs test 2 and 3 no test drug concentration gives singnificant activity. Chymbopogon Citratus extract 400 mg and 600 mg shows significant effect when compaired with that of standard.

Fig-animal showing 3rd stage of catatonia

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Fig-animal showing 4th stage of catatonia

IV. STATICALLY ANALYSIS:

The result are expressed as mean S.E.M. The stastical analysis was performed by analysis of variance (A.N.O.V.A) by Dunnett'smultipal comparison test.

V. RESULT:

Treatment (Dose in mg/kg)	Duration of Catalepsy in min at					
	0	30	60	90	120	Mean ±SEM
Normal	00	00	00	00	00	0±0
Negative control (Haloperidol) ##	01	2.5	3.5	3.5	3.5	2.8±0.48
Positive control (levodopa carbidopa+ haloperidol) **	00	0.5	01	01	0.5	0.6±0.18
Test 1 C.C Extract 200mg	00	2.5	2.5	2.5	0.5	1.8±0.48
Test 2 C.C Extract 400mg **	00	1.5	1.5	1.5	0.5	1±0.31
Test 3 C.C Extract 800mg **	00	01	1.5	01	0.5	0.8±0.25

n=6,values are express as mean =SEM
**p<0.01 when compaired to negative control ,
# p<0.01 when compaired to normal control statistically analysed by one way ANOVA

Application:

1-the chymbopogoncitratus is significantly inhibit the Parkinson disease symptoms.
2-chymbopogon citratus is a natural drug having no any side effects.
3-it is significantly inhibit the Parkinson disease as compare to standard drug.

VI. CONCLUSION:

The chymbopogoncitratus extract 400 mg and 600 mg shows significant effect when compared with that of standard .so the test extract exibit anti-parkinsonactivity, which may be due to the phytochemical constituents present in the extract of chymbopogoncitratus. The constituents present in lemon grass is structurally similar to dopamime hence the lemon grass shows the significant activity to inhibit the parkinson disease.

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