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Herbal drugs Used on Parkinson Disease

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ABSTRACT

Parkinson's disease (PD) is the world's most widespread chronic neuron degenerative motion condition affecting more than 10 million people. The characteristic hallmark of PD involves a progressive loss of doperminergic neuron in the brain's Subetantia Nigra. Considerable Beware of this paid recently to the Bio-friendly Usage plant-based products for neuron prevention, cure and treatment Disease and is degenerative. The herbal drugs therefore are safer than other drugs. Herbal medicine has its roots in ancient civilizations. It includes the usage of medicinal plants to cure disease and enhance general wellbeing.

Keywords: Parkinson, Herbal Drug Treatment, Ayurveda

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1. INTRODUCTION

Parkinson's disease is a chronic midbrain *Substantia nigra* neurological disorder. Dopaminergic neuron is gradually degenerated and causes reduction of the dopaminergic level in Striatum. Tremor, dyskinesia, myotonia and so on are the signs Watched mostly in the individual suffering from the disease [1].

2. HERBAL EXTRACT AND ACTIVE COMPONENT WITH ANTI-PARKINSONIAN ACTIVITIES

The herbal medicines were listed in table 1, which, according to their families, species and part of the plant used in treatment, have been shown to be effective on PD.

2.1 Acanthopanax

Acanthopanax from *A. Senticosus* Harms protects C57BL/6 mice against dopaminergic MPTP-induced neuronal damage. B-side Eleuthero, a part of *A. Senticosus Harms* protects the PC12 cells from MPP (+) damage [2]. Sesamin, a part of *A. Senticosus Harms* has a protective impact on the behavioral instability of rotenone-induced rat model and picomolar concentrations of sesamine-induced neuronal PC12 cells from cell death-induced MPP+ [3]. Stem bark extract is successful in raising DA and noradrenaline rates in the MPTP-induced PD rat model [4].

2.2 *Chrysanthemum*

The *indicum Chrysanthemum L.* The extract is protective against lipopolysaccharide-induced cytotoxicity in SH-SY5Y cellular model and BV-2 microglial cells of Parkinson's disease and 1-methyl-4-phenylpridinium ion [5]. Inhibits the mitochondrial apoptotic process, suppresses ROS aggregation, greatly increases the ratio elevation of Bax / Bcl-2 in SH-SY5Y cells and decreases SH-SY5Y cell death [5,6].

2.3 *Withania somnifera*

Withania somnifera is commonly used as the *Ashwagandha ginseng*, Indian. *Ashwagandha* mitigates the Alterations of movement output and inflammatory neuronal biomarkers in a paraquat-induced rat model of Parkinson's disease[7]. In rotenone formula, *Ashwagandha* decreases the brain's oxidative stress and with the higher dosage, certain parameters such as nitric oxide have been normalized [8]. Oxidative status in the brain has been enhanced in 6-OHDA, *Ashwagandha* root attenuate Corresponding improvements in motor efficiency [9] and in MPTP toxicity in mice [10]. Pretreatment with leaf extract showed attenuation of cortex and striatum and physical performance oxidative changes in MPTP toxicity[11].

Table 1: Herbal medicines treating parkinsons disease.

Sr. No	Plant Name	Families	Species	Plant Part	Ref
1	*Acanthopanax senticosus*	Araliceae	*E. senticosus*	root & rhizome	[1/4/3/2]
2	*Chrysanthemumindicum*	*Asterceae*	*C.indicum*	Whole plant	[5/6]
3	*Withania*	*Solanaceae*	*Withania sominifera*	Root	[7/8/9/10/11]
4	*Trifolium*	*Fabaceae*	*Trifoliumpratense*	Whole plant	[12/13]
5	*Tripterygium*	*Celastraceae*	*TripterygiumwilfordiiHookF.*	Root& bark	[14]
6	*Nardostachys*	Valirenaceae	*Nardostachysjatamansi*	Root	[15]
7	*Mucuna*	Fabaceae	*Mucuna pruriens*	Seed	[16/17/18]
8	*Bacopa*	Plantaginaceae	*Bacopa monnieri*	Whole plant	[19/20]
9	*Gynostemma*	Cucurbitaceae	*Gynostemmapentaphyllum (Thunb.) Makino*	Leaves	[21/22]
10	*Clausena*	Rutaceae	*Clausena lansium*	Leaves	[23]
11	*Cynodon*	Poaceae	*Cynodondactylon*	Plant extract	[24/25]
12	*Centella*	Apiaceae	*Centella asiatica*	Whole plant	[26]
13	*Ocimum*	*Lamiaceae*	*Ocimum sanctum*	Whole plant	[27]
14	*Plumbago*	Plumbaginacea	*Plumbago scandens*	Whole plant	[28]
15	*Hypericum*	Guttiferae	*Hypericum perforatum L.*	Whole plant	[29/30/31]
16	*Alpinia*	Zingiberaceae	*Alpinia oxypylla*	Kernel extract	[32/33/34]
17	*Cassia Tora*	Fabaceae	*Sanna tora*	Seed	[35/36]
18	*Polygogum cuspidatum*	Polygonaceae	*Reynoutria japonica*	Rizome	[37/38/39]
19	*Gastrodia elata*	Orchidaceae	*Gastrodia elata*	Whole plant	[40/41]
20	*Gynostemma penidphyllum*	Cururbitaceae	*G.pentaphyllum*	Whole plant	[42/43]
21	*Ginkgo biloba*	Ginkgoaceae	*G. biloba*	Whole plant	[44/45]
22	*Panax ginseng*	Araliaceae	*Panax ginseng*	whole plant	[46/47]

2.4 *Trifolium*

Red clover extract applies to the pre-tense plant known as *Trifolium*. Iso-flavones: red clover- Pratensein, formononetin and daidzein help to protect the nerves from dopaminergic LPS-induced neuronal damage[12]. Biochanin A, an estrogenic red clover bioflavonoids, improves the consumption of dopamines[13]. *Red clover* extract slightly lesson the scale of the lesion.

2.5 *Tripterygium*

Common Threewingnut Root (CTR) is a dried root of *Tripterygium wilfordii Hook F*. CTR extract protects dopaminergic neurons against lipopolysaccharide-induced inflammatory Dismissal [14].

2.6 *Nardostachys*

Nardostachys jata-mansi is a Valerian flowering plant. In6-OHDA model of Parkinson's disease, *Nardostachys jata-mansi* extract has neuroprotective effects shown by increased D2 receptor population in striatum, decreased SOD behavior, CAT. Pretreatment with *Nardostachys.* The *jatamansi* Recover strongly GSH and heighten density of TH-IR fiber [15].

2.7 *Mucuna*

Mucuna pruriens (MP) has long been used as a tool in the diagnosis of Parkinson's disease in Indian herbal medicine. Compared to levodopa in the lesion edrate model 6-hydroxydopamine (6-OHDA) of Parkinson's disease *Mucuna pruriens* Displayed higher anti-Parkinson activity[16]. This natural source of l-dopa can take control advantages in the long-term maintenance of PD over traditional l-dopa preparations[17]. Similar to estrogen in the PD. *Mucuna pruriens* therapy model of 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP), all the defects caused by MPTP have Were restored with further success than those of estrogen[18].

2.8. *Bacopa*

Bacopa monnieri pretreatment of dopaminergic N27 cell lines demonstrated reduction of ROT-induced oxidative stress and cell death (in rotenone-Motivated mouse model), normalization of oxidative marker rates (ROS, malondialdehyde and hydroperoxide rates), restoration of GSH levels, dopamine levels, cytosolic antioxidant enzyme activity levels and neurotransmitter function [19]. It offered for defense rotenone-induced oxidative stress in the Drosophila model and prevented dopamine degradation in flies (by reducing mortality occurrence and doing better in a negative geotaxis assay). In a bioassay for paraquatoxidative tension it confers sometimes tremendous resistance [20].

2.9 *Gynostemma*

Gynostemma pentaphyllum herbal ethanol extract demonstrates neuroprotective effects on PD type 6-OHDA-

lesioned rat [21]. Gypenosides, The G's saponins. *Pentaphyllum*, defensive dopaminergic neurons in primary culture or in the extensive PD mouse model against oxidative damage induced by MPP+ [22].

2.10. *Clausena*

Clausena lansium is native fruit tree from southern China. Care in progress with Bu-7 a flavonoid from *Clausena lansium* leaves, decreased apoptosis induced by rotenone, mitochondrial potentialand Added protein phosphorylation induced by rotenone [23].

2.11 *Cynodon*

The traditional use of *cynodon dactylon* is in Ayurveda. *Cynodon dactylon* 's anti-Parkinson activity attenuated the motor defects and shielded the brain from oxidative stress in the PD model of rotenone-induced Parkinson's rats. [24]. *Cynodon* extract dactylontested for its toxicity to the viability of the PC12 cell line and its antioxidant activity, the plant displayed no toxic effects on the viability of the PC12 cell line and demonstrated Stark antioxidant activity[25].

2.12 *Centella*

Centella asiatica (Gotu Kola) is an Ayurvedic traditional medicine. *Centella asiatica* is protective against Parkinsonism Induced by MPTP. This works according to showing antioxidant involvement in brain area of the hip-pocampus and corpus striatum. The extract decreases the amount of protein carbonyls, lipid peroxidation and Upgrades dimutase of superoxides, xanthine oxidase, glutathione peroxidase, catalase and complete antioxitants [26].

2.13 *Ocimum*

Ocimum tenuiflorum or tulasi (*Ocimum sanctum*). *Ocimum sanctum* leaf extract has a neuroprotective effect on a catalepsy caused by haloperidol in albino mice. *O. Sanctum* extract has a neuropro-tective effect on parkinsonism induced by rotenone and a catalepsy induced by haloperidol in rats and muscle rigidity in mice[27].

2.14 *Plumbago*

The *Plumbago scandens* is a plumbago genus. *Plumbago's* crude ethanolice extract and complete acetate fraction works against Parkinsonism by reducing locomotive operation, catalepsy, and palpebral ptosis [28].

2.15 *Hypericum*

Hypericum in PC12 cells, an extract of *Hypericum perfora-tum L*, abundant in flavonoids. Has beneficial influence on H_2O_2-inducing apoptosis. In rat model rotenone-induced PD, the extract decreases oxidative stress and improves antioxidant enzyme gene expression. This shows neuromodulating activity in mice m odel MPTP- induced PD [[29]. *Hypericum* perforatum extract and bromocriptine com-bination shows substantial reduction in lipid peroxidation against MPTP-induced neurotoxicity in mice and Growing in dopamine rates, DOPAC rates of antioxidant status [30]. Acomponent from *Hypericum* in PC12 cells. Pernatum *L. Hyperoside* has the antioxidant properties of tert-butyl hydroperoxide and H2O2 mediated cytotoxicity[31].

2.16 *Alpinia*

Alpinia Fructus Alpiniae Oxyphyllae (dried, ripe seed of *Alpiniaoxyphylla Miq*) extract has a protective effect on neuronal injury induced by 6-OHDA by anti-inflammatory (gene expression Down streaming of IL-1 and TNF-) and anti-oxidant action (in PC12 cells by NO production inhibition and iNOS expression)[32]. Proto-catechuic acid, a component of *Fructus Alpiniae* Oxyphyllae, protects C57BL/6J mice from MPTP-induced dopaminergic neuronal damage[33]. It also reduces the cell death induced by hydrogen peroxide or sodium nitroprusside in PC12 cells and in MPP (+) treated PC12 cells, inhibits apoptotic morphology, reduces TH expression cytotoxicity and abnormal alpha-synuclein oligomeration [34].

2.17 *Cassia*

Cassia Cassiae Semen is the seed of dry, mature *Cassia obtusifolia L. Tora Cassia L.* (*Tora C.*). *Alaternin*, a part of C. Tora has powerous peroxynitrite-scavenging, stated to be PD, and attenuates neuronal cell death from transient cervical hypoper fusion in mice[35]. *Cassiae Semen* extract has beneficial properties in PD models of 6-OHDA-induced neurotoxicity in PC12 cells and MPTP-induced neuronal degeneration in the PD form of the mouse, as well as seed extract in hippocampalcultures of the mouse.[36]

2.18 *Polygonum*

The dried root and rhizome of the *Polygonum cuspidatum Sieb* is Polygoni Cuspidati Rhizoma Et Radix. The Zucc. Naph-thoquinone, 2-methoxy-6-acetyl-7-methyljuglone from Polygonum cuspidatum driedrhizome has defensive, antioxidative, and antiapoptotic activity in PC12 cells [37]. Resveratrol, a part of *Polygonum cuspidatum* has protective impact in nigral cells of Parkinsonian rats [38]. An entire grape extract (*Vitis vinifera*) and Poly-gonum cuspidatum revealed dose-dependent scavenging effects on reactive oxygen species. A major increase in climbing ability and extensionin average lifespan in transgenic Drosophila Parkinson's disease model proved to be a potent free radical scavengerand mitochondrial defender. [39].

2.19 *Gastrodia*

Gastrodiae Rhizoma is *Gastrodia elata* dried tuber Bl. *The Gastrodiae Rhizoma* extract has beneficial effects on PP+-induced cytotoxicity in SH-SY5Y cells[40]. Vanillyl alcohol, a part of *Gastrodiae Rhizoma*, prevents dopaminergic MN9Dcells from MPP+-induced apoptosis by modulating the apoptotic cycle and relieving oxidative stress[41].

2.20 *Gynostemma*

Gynostemma pentaphyllum herbal ethanol extract demonstrates neuroprotective effects on PD type 6-OHDA-lesioned rat[42]. Gypenosides, The G's saponins. Pentaphyllum, defensive dopaminergic neurons in primary culture or in the extensive PD mouse model against oxidative damage induced by MPP+[43].

2.21 *Ginkgo*

Ginkgo Folium is *Ginkgo biloba L's* entire, dried leaf. In software PD mice *G. Biloba* 761 attenuates the neuro degeneration of the nigrostriatal pathway induced by MPTP and has an inhibitory effect on oxidative stress [44]. In Cells of PC12, G. Biloba extract has protective effects against 6-hydroxydopamine induced parkinsonism on paraquat-induced apoptosis and PD rat models [45].

2.22 Panax

The dry root and rhizome of *Panax ginseng C is Ginseng Radix Et Rhizoma*. Mey, A. Mey. *Ginseng* extract G115 has been significantly pro-tected against neurotoxic effects of MPTP and MPP+ in rodents. Ginseng saponins have enhanced the growth of dopaminer-gic neuroblastoma cells SK-N-SH [46]. Ginseng has an inhibitory function in MPP+ accumulation in dopaminergic neurons, suppresses oxidative stress caused by dopamine autoxidation and attenuates apoptosis caused by MPP+ and Growth factor for nerves (NGF) potenzia.

Ginsenosides impede dopamine secretion into synaptosomes of rats[47]. Ginseng Radix Dampened MPP+-induced apoptosis which decreased the severity of MPP+-induced DNA laddering in PC12 cells and ginsenoside Rg1 had a protective effect against MPTP.

3. DISCUSSION

A significant number of traditional herbal ingredients, i.e. he rbs, have been identified for their successful role in autonom ic dysfunction diagnosis and intervention.Some research has concentrate
on herbs such as antioxidants, hepatoprotective, pro-inflammatory , and anti-apoptosis such as *Hypericum*, *Gastrodia*, Panax and specific ayurvedic varieties, Dopamine, flavonoids, alkaloids, and polyphenols are the other constituents contained in these plants against parkinsonism.One should look more closely at the pharmacological and phytochemical constituents of these plants, which can be useful for formulation preparation.

4. CONCLUSION

It is primarily because the bulk of traditional herbal items are sophisticated combinations of chemical components which have different phytochemical and pharmacological activities. The details gathered in this review on a wide range of herbal remedies and ingredients with beneficial results on laboratory animals of parkinsonism will be included in the quest for potential medication interventions from traditional medicines for this disease. The medicinal ingredients for which development and related and therapeutic potential are well defined may be prime candidates for further examinations and could eventually contribute to therapeutic intervention.

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