

Implication of green tea as a possible therapeutic approach for Parkinson disease

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Green tea is a beverage consumed around the world that is believed to have substantial health benefits such as reducing the risk of cancer, cardiovascular diseases, diabetes and neurodegeneration. This beverage is prepared from the leaves (steamed and dried) of the *Camellia sinensis* plant and contains strong antioxidant and neuroprotective phenolic compounds from which the most important is (-)-Epigallocatechin-3-gallate. Parkinson's disease (PD) is the second most common neurodegenerative disorders, after Alzheimer's disease and is characterized by degeneration of dopaminergic neurons in the pars compact of the substantia nigra of the basal ganglia. It has been shown in pre-clinical and clinical studies that green tea may be able to prevent PD, but its optimal dose or a possible mechanism explaining its health benefit in PD has not been properly established. In this review, we discuss the potential role of green tea's phenolic compounds and their therapeutic effect in modulating key signaling pathways in the PD brain. © 2016 Bentham Science Publishers.

(-)-epigallocatechin-3-gallate

Antioxidant

Green tea

Neuroprotection

Oxidative stress

Parkinson disease

1 methyl 4 phenylpyridinium

alpha synuclein

amine oxidase (flavin containing) isoenzyme B

amyloid beta protein

catechin

catechol methyltransferase

epigallocatechin gallate

Fas antigen

Fas ligand

growth arrest and DNA damage inducible protein 45

heat shock protein 90

hypoxia inducible factor 1alpha

immunoglobulin enhancer binding protein

inducible nitric oxide synthase

interleukin 1beta

iron

levodopa

mitogen activated protein kinase

oxidopamine

phosphatidylinositol 3 kinase

procollagen proline 2 oxoglutarate 4 dioxygenase

protein BAD

protein kinase C

reactive oxygen metabolite

reduced nicotinamide adenine dinucleotide dehydrogenase

rotenone

tumor necrosis factor alpha

tumor necrosis factor related apoptosis inducing ligand

ubiquitin conjugating enzyme E2

unindexed drug

catechin

neuroprotective agent

tea

aging

antioxidant activity

apoptosis

Article

bioavailability

Camellia sinensis

cell viability

clinical examination

disease course

disorders of mitochondrial functions

enzyme activity

enzyme inhibition

human

lipid peroxidation

metabolism

nervous system inflammation

neuroprotection

neurotoxicity

nonhuman

nuclear magnetic resonance imaging

oxidative stress

Parkinson disease

protein binding

protein expression

tea

analogs and derivatives

animal

chemistry

Parkinson disease

tea

Animals

Catechin

Humans

Neuroprotective Agents

Parkinson Disease

Tea