



Office of Technology Management

Novel Design of Catechins - Monomers and Dimers

Technology Reference

CX067

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Field

Cancer

Immunology

Neurology

Cardiology

Key Words

Catechins

Antioxidants

Gallic Acid

Derivatives

Flavonoids

Flavanols

License Status

Seeking licensing partners

Patent Status

Provisional patent filed

Overview

It is known that catechins have both antioxidant and pro-oxidant properties. In numerous studies, the antioxidant activity of the basic extract from tea has been investigated, and its main anti-oxidative components are catechins, e.g., epigallocatechin gallate, epicatechin gallate, epigallocatechin, and epicatechin. Epicatechin can increase its antioxidant activity with the addition of another hydroxyl group on the B ring (forming epigallocatechin) with a further increase activity by the addition of gallic acid. However, some catechins are reported to have mutagenic and co-carcinogenic properties and may generate free radicals under certain conditions, e.g., in the presence of metal ions.

Studies utilizing gallic acids and its catechin have found them to possess many potential therapeutic properties including anti-cancer and antimicrobial properties.

There has been growing interest in the in vivo effects of the gallate esters because of their applicability in food industry as antioxidants and in the catechin gallates with their potential role as chemo-protective agents.

Technical Summary

This current research presents a novel design of catechins, as monomers and dimers. It is anticipated that molecules of this novel structure class will serve as better drugs as a consequence of their enhanced metabolic stability. The compounds of this research are anticipated to show better activity as antioxidants, neuro-protectors for neurodegenerative diseases, immune modulators for AIDS, and these novel compounds may have cardiovascular and anti-cancer activity. They also may be used as anti-allergic, anti-hypertensive, hair-growth, anti-mutagenic, and anti-bacterial compounds.

In addition to potential use as therapeutics, these novel compounds may have a potential within the food industry, and its functional-food marketplace, by creating flavanol-rich food products such as "healthy" chocolate and cocoa.

Benefits

- Potential anti-cancer, anti-infective, neuro-protective, and cardiovascular therapies

Areas of Application

- Cancer
- AIDS
- Cardiovascular diseases
- Nutraceuticals
- Anti-infectives
- Neurodegenerative diseases
- Functional foods

Stage of Development

- Early