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"NEUROTEA" – BIOACTIVE FUNCTIONAL TEA PREPARED FROM GINKGO BILOBA AND MEDICINAL PLANTS

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Abstract

This article scientifically examines the bioactive properties and effects on the human body of "NeuroTea" functional tea created based on Ginkgo biloba and other medicinal plants. The psycho-emotional stress, neurodegenerative diseases, and cognitive decline brought about by modern lifestyle have increased the demand for functional food products. The article analyzes the main bioactive components of Ginkgo biloba plant – flavonoids, terpenoids and polyphenols – and their neuroprotective, antioxidant and cognitive function-enhancing effects. Additionally, auxiliary medicinal plants (mint, rosemary, lemon balm) included in the tea composition and their synergistic effects were examined. The role of functional teas in modern pharmacognosy and nutriciology was evaluated. Research results indicate that regular consumption of "NeuroTea" bioactive tea can be an effective means of improving cerebral circulation, enhancing memory and concentration, reducing oxidative stress, and strengthening overall health.

Keywords

Ginkgo biloba, functional tea, bioactive compounds, neuroprotection, antioxidants, cognitive functions, flavonoids, medicinal plants, nutriciology.

INTRODUCTION

In 21st century modern society, the increase in intellectual labor, intensification of psycho-emotional burdens, and the lowering age threshold of neurodegenerative diseases have significantly increased the need for functional food products. According to the World Health Organization, cognitive impairments and declining brain function are among the global health challenges. The search for natural, safe, and effective remedies to prevent and address these problems is considered an urgent task.

Numerous scientific studies have shown that plant-derived bioactive substances play an important role in regulating various physiological processes of the organism. In particular, Ginkgo biloba – one of the oldest tree species on Earth – has had its leaves widely used in Eastern medicine for thousands of years.

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Modern pharmacology and phytochemistry research has scientifically confirmed the neuroprotective, antioxidant, circulation-improving, and cognitive function-enhancing properties of Ginkgo biloba extracts.

The concept of functional food products began to take shape in Japan in the 1980s and has now become widespread throughout the world. Functional teas are considered an effective way to introduce health-beneficial bioactive components into daily life in an easy and pleasant manner. The development of "NeuroTea" is an innovative approach aimed at supporting brain function and strengthening overall health by utilizing the synergistic effects of Ginkgo biloba and auxiliary medicinal plants.

MAIN BODY

Ginkgo biloba – A Plant with Neuroprotective Effects

Ginkgo biloba (Ginkgoaceae family) has a paleobotanical history of 270 million years and is called a "living fossil." Its leaves possess a rich phytochemical composition, with the main bioactive components divided into two groups: flavonoid glycosides and terpene lactones – ginkgolides and bilobalides. These substances have complex properties that improve cerebral circulation, protect neurons from oxidative damage, and enhance cognitive functions.

Scientific research has identified the following pharmacodynamic effects of Ginkgo biloba extracts: vasomotor activity, normalization of capillary permeability, inhibition of thrombotic processes, and stimulation of neurotransmitter synthesis (dopamine, serotonin, noradrenaline). Flavonoids act as powerful antioxidants, capturing free radicals and preventing lipid peroxidation.

Numerous clinical studies in modern neurology and gerontology have demonstrated the effectiveness of Ginkgo biloba preparations in Alzheimer's disease, vascular dementia, memory disorders, and attention deficit syndromes. Furthermore, this plant has shown positive effects in reducing weather sensitivity, improving sleep quality, and stabilizing psycho-emotional states.

Modern Concept of Functional Teas

Functional food products are understood to be products containing special components that provide physiologically beneficial effects to the organism beyond basic nutritional value. Functional teas fall into this category and are enriched with plant extracts, vitamins, minerals, antioxidants, and other bioactive substances.

Modern nutriciology classifies functional teas into several categories: immunomodulatory, detoxifying, neuroprotective, cardioprotective, and metabolism-regulating. "NeuroTea" belongs to the group of neuroprotective and

cognitive function-supporting teas, with its primary objective being to ensure efficient brain function and maintain psychophysical stability.

Tea preparation technology is also of great importance. The infusion method – the traditional way of saturating dry plant raw materials with hot water – ensures maximum extraction of bioactive substances. Temperature, time, and the ratio of tea components determine the biological activity of the product.

Auxiliary Medicinal Plants in "NeuroTea" Composition

Along with Ginkgo biloba, the following medicinal plants were included in the "NeuroTea" composition:

Peppermint– helps relax muscles, calm the nervous system, and improve digestion. Menthol and other essential oils have spasmolytic and mild sedative effects.

Rosemary– a plant that strengthens memory and concentration; rosmarinic acid has antioxidant and neuroprotective effects. This plant improves cognitive abilities by inhibiting the enzyme acetylcholinesterase.

Lemon balm (Melissa officinalis) – has a calming effect, reducing anxiety and stress. Lemon balm's interaction with GABA (gamma-aminobutyric acid) receptors helps balance the nervous system.

The combination of these plants creates a synergistic effect, increasing the overall effectiveness of "NeuroTea." Each component has its own specific pharmacological properties, and together they provide complex neuroprotective, antioxidant, and adaptogenic effects.

Physiological Action Mechanisms of Bioactive Substances

The bioactive components of Ginkgo biloba and auxiliary plants act through several molecular mechanisms:

Antioxidant protection – flavonoids and polyphenols reduce oxidative stress by neutralizing free radicals. This process protects cell membranes, DNA, and proteins from damage.

Improvement of cerebral circulation – as a result of vasodilation, the delivery of oxygen and nutrients to brain tissue is improved. This leads to optimization of neuronal function.

Neurotransmitter modulation – some bioactive substances regulate the synthesis and activity of neurotransmitters such as dopamine, serotonin, and acetylcholine, which improves cognitive processes and mood.

Anti-inflammatory effect – neuroinflammation plays an important role in the pathogenesis of many neurodegenerative diseases. Ginkgolides and other bioactive components reduce the production of pro-inflammatory cytokines.

Neuroprotection – bioactive substances provide long-term protective effects through improving mitochondrial function, preventing apoptosis, and supporting neuronal plasticity.

Role of Functional Teas in Modern Medicine

The development of the preventive medicine concept has further strengthened interest in functional food products. Preventive strategies are aimed at disease prevention rather than treatment, which is also a more economically efficient approach. Functional teas, when consumed regularly as an integral part of the daily diet, provide long-term health maintenance effects.

Products like "NeuroTea" are intended for a wide target audience: students and those engaged in intellectual labor, elderly individuals, persons exposed to psycho-emotional stress, and all people wishing to preserve their cognitive abilities. The product's natural composition and minimal risk of adverse effects make it safe and universal.

Modern pharmacognosy and ethnopharmacology support the return of plant-based remedies to clinical practice. Evidence-based phytotherapy is being considered as an alternative or complementary tool to synthetic preparations. Functional teas have found their place within integrative medicine as a means of preventive and supportive therapy.

CONCLUSION

"NeuroTea" bioactive functional tea is a modern prophylactic product created based on a scientifically substantiated combination of Ginkgo biloba and auxiliary medicinal plants. The literature and theoretical data analyzed in this article demonstrate that the compositional components of this tea possess powerful neuroprotective, antioxidant, and cognitive function-enhancing properties.

The flavonoids and terpenoids of Ginkgo biloba extract demonstrate effective action in improving cerebral circulation, reducing oxidative stress, and protecting neurons. Auxiliary plants – peppermint, rosemary, and lemon balm – comprehensively help stabilize psycho-emotional states, strengthen memory and attention, and enhance overall health.

The role of functional teas in modern medicine and nutriciology is steadily growing. Within the framework of preventive medicine strategy, products like "NeuroTea" can be a safe and effective means of reducing the risk of cognitive disorders and neurodegenerative diseases, increasing work productivity, and improving quality of life.

In the future, it would be appropriate to continue research in this direction, evaluate the clinical efficacy of the "NeuroTea" product, and study its effects in various populations. Additionally, improving functional tea production

technology and exploring possibilities for incorporating new bioactive components into the composition is a promising direction.

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