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ANTI-NEURODEGENERATIVE ACTIVITY OF THE PROBIOTIC STRAIN LACTOBACILLUS ACIDOPHILUS

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Abstract

Introduction: *Neurodegenerative disorders are characterized by gradual loss of selectively susceptible populations of neurons. Primary clinical features (e.g., dementia, parkinsonism, or motor neuron disease), anatomic distribution of neurodegeneration (e.g., frontotemporal degenerations, extrapyramidal disorders, or spinocerebellar degenerations), or primary molecular abnormality can all be used to classify neurodegenerative diseases. The frequency of neurodegenerative disorders gets increased every year as the population in the world gets older. Lack of effectiveness in currently available drugs and severe side effects lead to the necessity for development of novel drugs from natural sources.*

Present study focuses on evaluating the anti-neurodegenerative activity of a probiotic Lactobacillus acidophilus.

Material and methods: *Probiotic characterisation assay such as tolerance to NaCl, phenol and bile salts were evaluated. Antibiotic sensitivity test five standard antibiotics were performed. Acetyl cholinesterase inhibition and tyrosinase inhibition assay were carried out at five different concentrations. From the analysis, Lactobacillus acidophilus was found to be tolerant to NaCl, phenol and bile salts.*

Results: *The Lactobacillus acidophilus strain was found to be sensitive to all the tested antibiotics. Significant acetyl cholinesterase and tyrosinase was observed at 100 µL of crude extracts 69.29 ± 3.25% and 53.18 ± 2.89%.*

Conclusion: *Lactobacillus acidophilus as a probiotic supplement can be utilized for treatment and prevention of neurodegenerative disorders.*

Keywords: *acetylcholinesterase inhibition, Lactobacillus acidophilus, neurodegenerative disorders, tyrosinase inhibition.*

Introduction

In contrast to select static neuronal loss caused by metabolic or toxic illnesses, neurodegenerative disorders are characterized by gradual loss of selectively susceptible populations of neurons. Primary clinical features (e.g., dementia, parkinsonism, or motor neuron disease), anatomic distribution of neurodegeneration (e.g., frontotemporal degenerations, extrapyramidal disorders, or spinocerebellar degenerations), or primary molecular abnormality can all be used to classify neurodegenerative diseases. Parkinson's disease, Alzheimer's disease, amyloidoses, tauopathies, -synucle-

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