Seminar 2

Exploring the effects of different aromas in preventing tau and alpha-synuclein protein fibrillation

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Abstract

Neurodegenerative diseases are a global health concern, affecting millions of people worldwide. According to the World Health Organization, Alzheimer's disease, Parkinson's disease, and other forms of dementia affect over 55 million people globally, with this number expected to triple by the year 2050. The prevalence of these diseases varies by region and demographic factors, with aging being the most significant risk factor. Despite ongoing research efforts, there is currently no cure for these diseases, highlighting the urgent need for effective treatments as well as prevention strategies. A common characteristic of many neurodegenerative diseases, including Alzheimer's and Parkinson's, is protein fibrillation. The accumulation of protein fibrils can disrupt normal cellular processes, cause inflammation, and ultimately lead to neuronal death. The exact mechanisms by which protein fibrillation causes neurodegeneration are still being studied, but it is believed that the toxic effects of the fibrils on neurons and the formation of plaques and tangles contribute to the progression of these diseases. In this seminar, the effects of several aromas on protein fibrillation will be thoroughly assessed using data obtained from various techniques such as Thioflavin T (ThT) and 8-Anilino-1-naphthalenesulfonic acid (ANS) fluorescence assay, Circular Dichroism (CD), and Atomic Force Microscopy (AFM). Recent studies have shown that certain aromas can inhibit protein fibrillation and potentially slow down the progression of these diseases. Overall, this seminar aims to provide insights into the role of aromatherapy in the treatment of neurodegenerative diseases and stimulate further research in this area.

Keywords: Aroma, Protein fibrillation, Neurodegenerative diseases, Aromatherapy.