REVIEW ARTICLE

PHOSPHODIESTERASE INHIBITORS FOR TREATMENT OF ALZHEIMER'S DISEASE

Phool Chandra[a*] and Himanshu Sharma[a]

(Received 02 October 2023) (Accepted 21 May 2024)

ABSTRACT

Cognitive decline with aging is a concern, particularly in neurodegenerative and mental diseases. Cognitive enhancers focus on cholinergic and monoaminergic systems, but Phosphodiesterases (PDEs) have gained interest in enhancing cognition by increasing intracellular accessibility of additional messengers. The present study sought to elucidate the effects of PDE-Inhibitors on perception, feasible underlying mechanisms, and their application to existing hypotheses regarding the formation of memories. The review examines literature from 2010-2023 on the effects of varicus PDE medications on mental processes, including studies on PDE-Is and their relation to blood flow, euphoria, and long-term potentiation. PDE inhibitors enhance brain information processing, concentration, memory, executive function and memory use, likely due to an LTP-interrelated mode of action. PDE2-Is and PDE9-Is are potential candidates for cognitive enhancement, but isoform-specific PDE-Is with minimal negative properties are needed to realize their potential fully.