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ENZYME INHIBITORS: FOES AND FRIENDS?

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Enzyme inhibition theory is a prominent topic in scientific research. The increasing prevalence of global health problems underscores the urgent demand for therapeutic options to combat these diseases. Enzymes are vital components in the discovery of new drugs. Some key enzymes are implicated in the development of diseases. By inhibiting these enzymes, we can reduce the harmful effects of the diseases and effectively manage them. By inhibiting cholinesterase in Alzheimer's disease, acetylcholine levels in the synaptic clefts can be elevated, leading to enhanced memory function in patients. This principle is known as the cholinergic hypothesis, which serves as the foundation for the majority of Alzheimer's medications. Furthermore, blocking amylase and glucosidase can effectively postpone the increase in blood sugar levels for individuals with diabetes. Utilizing tyrosinase, the primary enzyme in melanin formation, can lead to targeted skin therapies. In the pharmaceutical industry, various chemicals like galantamine, kojic acid, and acarbose have been developed as enzyme inhibitors for diseases like Alzheimer's, skin diseases, and diabetes. However, their usage is restricted, primarily because of toxicity issues. Therefore, there is a demand for new and harmless inhibitors to replace these synthetic ones. In the study, the recent developments, advantages and disadvantages of enzyme inhibition methodologies and their application were summarized. The information can open on new horizons for further applications on enzyme inhibition and further applications.

Keywords: enzyme inhibition; amylase; obesity; cholinergic hypothesis, cancer.