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MEETING ABSTRACTS

CYTOTOXICITY STUDY OF OXIME@CB7 COMPLEXES FOR CENTRAL NERVOUS SYSTEM PENETRATION OF QUATERNARY ACETYLCHOLINESTERASE REACTIVATORS

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Acetylcholinesterase (AChE, E.C. 3.1.1.7) reactivators (also known as oximes) represent a class of antidotes that are used as therapeutics in cases of organophosphate (pesticide or nerve agent) poisoning. The AChE reactivators are highly hydrophilic compounds due to their quaternary nitrogen/s and hydrophilic oxime groups included in the structure. The absorption and distribution of such antidotes is limited by these structural factors. Their delivery may be improved through their encapsulation into macrocycles. Use of these vehicles may provide some retention effect or better targeting into the central nervous system via enhanced biological barriers´ permeability.

Cucurbit[n]urils are a family of rigid macrocycles provided by the acid condensation of glycoluril and formaldehyde. Encapsulation of oximes K048 and asoxime by cucurbit[7]uril (CB[7]) might provide controlled/delayed drug release from a depot or enhanced biological barriers permeability.

In our work we compared the cytotoxicity of oximes K048 and asoxime with their encapsulated forms using 3-(4, 5- dimethylthiazolyl-2)-2,5-diphenyltetrazolium bromide (MTT) assay. Panel of five different cell lines was used . The cytotoxicity was calculated for 24 h interval after the treatment. Our results show, that oxime@CB7 complexes decrease the cytotoxic effect of oximes used individually.

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