Synthesis of novel acetylcholinesterase reactivators bearing various linkers between two pyridinium rings

Summary

Six novel bispyridinium AChE reactivators with aliphatic linker and nine novel reactivators with xylene linker were synthesized. Their ability to reactivate AChE inhibited by nerve agent tabun and insecticide paraoxon was tested *in vitro*. pralidoxime, HI-6 a obidoxime were chosen as reference compounds. Regarding the obtained results, six compounds seem to be potent reactivators of paraoxon-inhibited AChE for both chosen concentration. Furthermore, there is evidence that compounds with only one hydroxyiminomethyl group with xylene linker have also reactivation ability compared to bisoxime compounds. Reactivation potency is decreasing with increasing length of the aliphatic linker. None of the tested compounds was able to reactivate tabun-inhibited AChE.