ABSTRACT

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Department of	**Pharmaceutical Chemistry and Drug Control**
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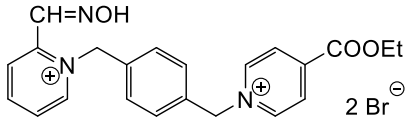
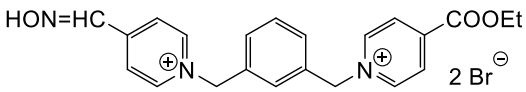
Title of Thesis	**Preparation and testing of bisquarternary pyridinium reactivators of acetylcholinesterase**

Within this rigorous thesis, 21 new potential bisquarternary pyridinium AChE reactivators were prepared and their reactivation abilities on dichlorvos and paraoxon inhibited AChE were determined *in vitro*. Pralidoxime (2-PAM), obidoxime, asoxime (HI-6), trimedoxime (TMB-4), methoxime (MMC), K027 and K203 were used as reference compounds as they are known to be able to partially reactivate paraoxon and dichlorvos inhibited AChE. The experimental data showed that 6 compounds were able to achieve reactivation parameters recommended for *in vivo* testing on dichlorvos inhibited hAChE and 8 compounds on paraoxon inhibited hAChE. The compounds (9), (19), (20) and (21) seem to be very promising reactivators since they were able to reactivate hAChE inhibited by both pesticides.



(9)



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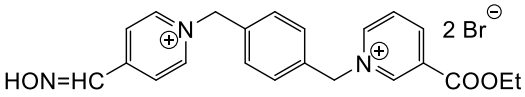
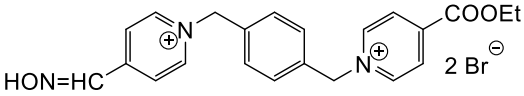


(20)



(21)

Based on *in vitro* results the structure activity relationships for newly prepared compounds were determined. Compounds having an oxime group in the 2- and 4- position to the pyridinium ring, the 1,4-phenyldimethylenyl or 1,3-phenyldimethylenyl connecting chain, and compounds having ethoxykarbonyl group in the position 3 or 4 on the pyridinium ring demonstrated markedly higher reactivation potential to the AChE inhibited by both pesticides.