NATO HANDBOOK ON THE MEDICAL ASPECTS OF NBC DEFENSIVE OPERATIONS AMedP-6(B)

PART III - CHEMICAL

ANNEX B

PHARMACOLOGY OF OXIMES

1 FEBRUARY 1996

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ANNEX B

PHARMACOLOGY OF OXIMES

B.01. Composition of Oximes.

a. The oximes comprise a group of compounds possessing one or more pyridinium rings and bearing one or more aldoxime groups. A large number of such compounds has been synthesised and are divided into:

(1) Mono pyridinium oximes such as pralidoxime (pyridine-2-aldoxime methyl chloride, PAM Cl, pralidoxime methylsulphonate) (Figure B-I).

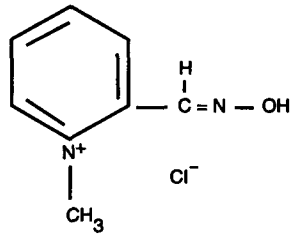

Figure B-I. Formula of Pralidoxime

(2) Bispyridinium oxides including obidoxime (Toxogonin ®) with the formula as shown in Figure B-II.

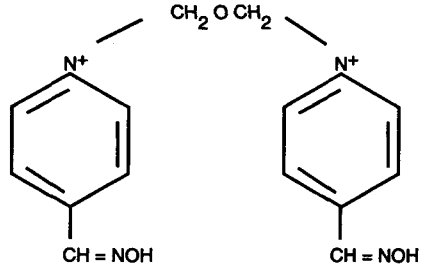

Figure B-II. Formula of Obidoxime

b. Recently the new Hagedorn (H) oximes have been synthesised and these include the compounds H16 and HS6 as shown in Figure B-III.

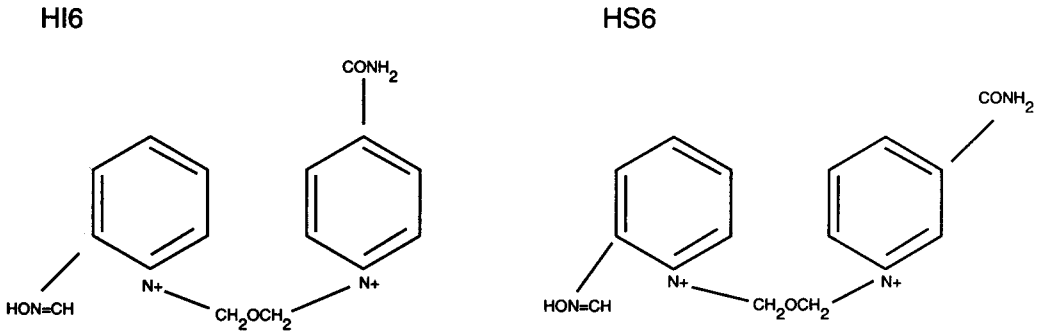

Figure B-III. Formula of Hagedorn Oximes

c. The oximes are thought to act by combining with the modified nerve agent molecule and removing it from the acetylcholinesterase enzyme. They also have other pharmacological effects which may contribute to their efficacy.

d. The sequence of reactions shown in Figure B-IV represents the reactivation of GB inhibited enzyme by pralidoxime.

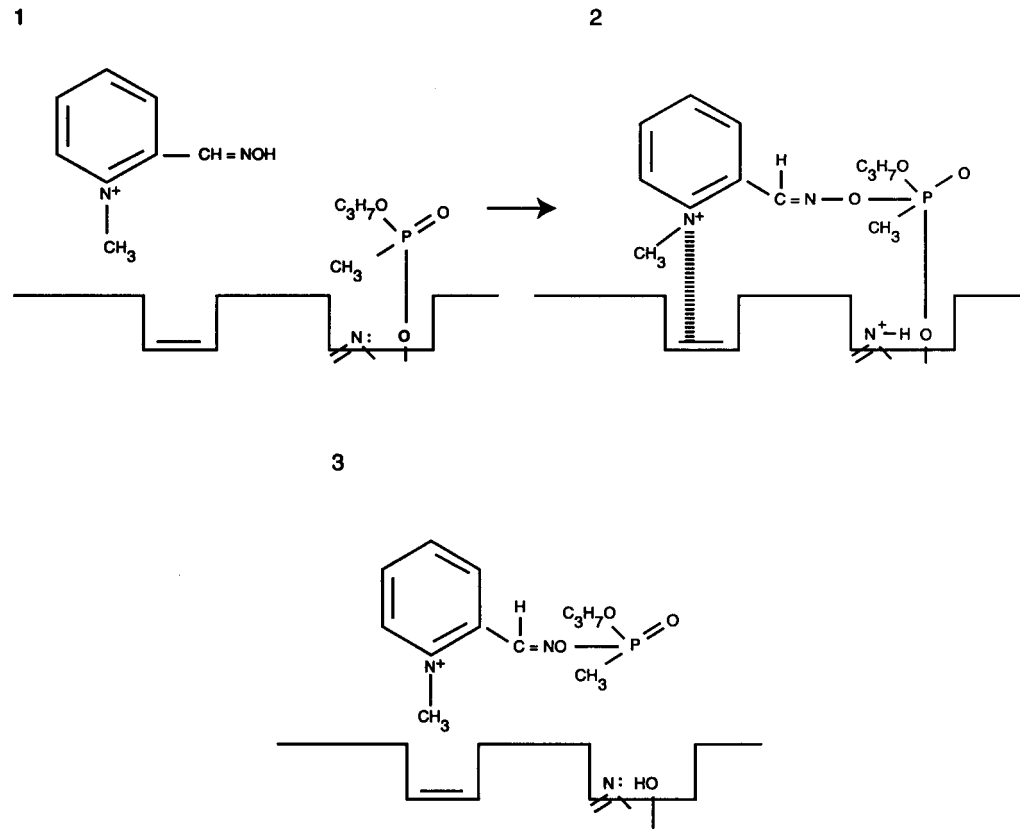

Figure B-IV. Reactivation of GB Inhibited Enzyme by Pralidoxime