Review of: "Assessment of four organophosphorus pesticides as inhibitors of human acetylcholinesterase and butyrylcholinesterase"

Joselia Lima

Potential competing interests: The author(s) declared that no potential competing interests exist.

The study investigated, in vitro, the inhibition kinetics of human cholinesterases, acetylcholinesterase and butyrylcholinesterase, by four pesticide organophosphates - Ethoprophos, Fenamiphos, Methamidophos and Phosalone. It identified the interactions of these compounds with active site residues of both cholinesterases, in silico. It also evaluated the ability of three oximes (1A, 14A, RS194B) to reactivate acetylcholinesterase inhibited by Methamidophos / Fenamiphos. It's interesting work, because there isn't one among the commercially available oximes that is effective as a universal antidote. So, it's always important to look for possibilities.

However, there are some concerns about about the study:

1) Why was the reactivation of hBChE inhibited by pesticide not evaluated, since this enzyme is extremely important for the reactivation?
2) inhibition and inhibition kinetics were performed but, they did not reactivate hBChE inhibited by pesticide and, consequently, did not model the complex. Nor did they justify the decision not to do so in the text.
3) BChE plays the role of an organophosphate scavenger, which means your inhibition is potentially harmful.