Elsayed A M Abdallah et al., J Clin Toxicol 2014, 4:4
http://dx.doi.org/10.4172/2161-0495.S1.012

OMICS Group Conferences
Accelerating Scientific Discovery

3rd International Summit on
Toxicology & Applied Pharmacology
October 20-22, 2014 DoubleTree by Hilton Hotel Chicago-North Shore, USA

Inhibition of terrestrial snails' glutamate decaboxylase (GAD) by abamectin and emamectin benzoate

Elsayed A M Abdallah, F A Kassem, A A Asran and G M Abdelgelil
Alexandria University, Egypt

In vivo effects of abamectin, emamectin benzoate and methomyl on GABAergic neurons were investigated against the activities of *Eobania vermiculata* brown garden snail (BGS) and *Theba pisana* white garden snail (WGS) glutamate decaboxylase (GAD). The GAD activity was evaluated by measuring the formed gamma aminobutyric acid after derivatization to phenylthio carbamoyl GABA (PTC-GABA) using HPLC with UV absorbance detection 245 nm. The HPLC of standards PTC-GABA and PTC-Glutamic had retention times 3.86 and 10.012, respectively. The results revealed that: Same type of response was noticed between both types of the snails BGS and WGS. While methomyl clearly inhibited GAD activity, abamectin and emamectin benzoate stimulated markedly the GAD activity in both types of the used land snails. The inhibitory effect of methomyl was dose dependent manner. That the activity of GAD enzyme increased by decreasing the dose treatments in both types of snails. However, the inhibition of GAD activity was more pronounced with BGS than WGS. Abamectin and emamectin benzoate induced a significant GAD stimulatory effect for both type of snails BGS and WGS. Abamectin interaction with GAD activity was higher than emamectin benzoate especially in the case of WGS when the stimulatory effect on GAD activity was less than BGS. The stimulatory effect decreased by time, the lowest stimulation obtained for BGS was at 72 hr with the least concentration used 1/10 of LD50. Specific activity value of GAD-BGS was higher than the value of GAD-WGS indicating more participation of GABAergic system of Eobania vermiculata compared with *Theba pisana* in this respect. These findings could illustrate how abamectin and emamectin benzoate induces the level of GABA neurotransmitter in *E. vemiculata* and *T. pisana* land snails, as it activates the biosynthesis of GABA and inhibit its degradation.

Biography

Elsayed A M Abdallah is Prof. of Pesticide Chemistry & Toxicology in the Dept. of Chemistry and Technology of Pesticide Faculty of Agriculture, Alexandria University, Egypt. He completed his Postdoctoral Fellow, Dept. of Biological Chemistry, University of Maryland, School of Medicine, Maryland (1981-1984). He was a Visiting Professor, Dept. of Pharmacology and Toxicology, School of Pharmacy, University of Maryland, Baltimore (1988-1990). He also did Postdoctoral Fellow, Dept. of Pharmacology and Experimental Therapeutics, School of Medicine, University of Maryland, Baltimore (1990-1991). He has a total of 79 original research articles, some of which have been published in first rate USA scientific journals while the rest are published in Egypt.

elsayedabdallah@yahoo.com