

## **Acetylcholinesterase (AChE) Biosensors for Determination of Carbamate Pesticides**

### **ABSTRACT**

Carbamate pesticides are widely applied for controlling pests in agriculture crops due to high insecticidal action and persistence in the environment. The wide applications of carbamate pesticide has required for strictly monitoring the residue levels of carbamate pesticide. Currently several analytical techniques are available for determination of carbamate pesticide residues such as gas chromatography, high-performance liquid chromatography coupled with various detectors, ultraviolet spectroscopy, surface plasmon resonance and fluorimetry involved a sample preparation step prior to further analysis. However, these techniques have some drawbacks such as requiring skill work force and time-consuming sample extraction procedures with high volumes of organic solvents. Enzymatic biosensors-based acetylcholinesterase offers a simple, rapid, high sensitivity and on-site monitoring for determination of carbamate pesticide concentrations. In this book chapter , enzyme-based biosensor methods briefly explained for determination of carbamate pesticide levels, and the immobilization techniques and carbamate pesticide toxicity discussed.