# Piezoelectric Crystal Biosensor for the determination of Organophosphorus Pesticide

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The pesticide biosensor based on acetylcholinesterase on a quartz crystal microbalance was developed. A layer of enzyme was attached onto the surface of a 10 MHz crystal using γ- aminopropyltriethoxysilane. To determine the pesticide concentration, the enzymed-PZ crystal was placed into a solution of organophosphorus (in 0.05 M phosphate buffer pH 7) for a period of time before drying. The frequency change observed after the forming of complexation between acetylcholinesterase and organophosphorus pesticide was measured and related to organophosphorus concentration.

The PZ biosensor responded to organophosphorus at the concentration less than 100 ppb. The effect of incubation time, method for drying and the reusability of the crystal are included in this paper.

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