Cite this as: Liujia SHI, Fangfang YANG, Yanyan XU, Shoufeng WANG, 2021. Expression of *Drosophila melanogaster* acetylcholinesterase (*DmAChE*) gene splice variants in *Pichia pastoris* and evaluation of its sensitivity to organophosphorus pesticides. *Journal of Zhejiang University-Science B (Biomedicine & Biotechnology)*, **22**(3):204-213. https://doi.org/10.1631/jzus.B2000525

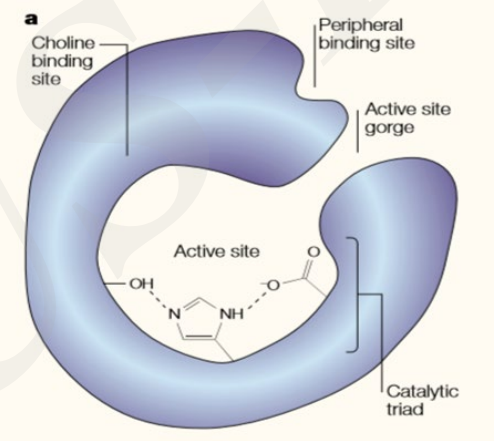
Expression of *Drosophila melanogaster* acetylcholinesterase (*DmAChE*) gene splice variants in *Pichia pastoris* and evaluation of its sensitivity to organophosphorus pesticides

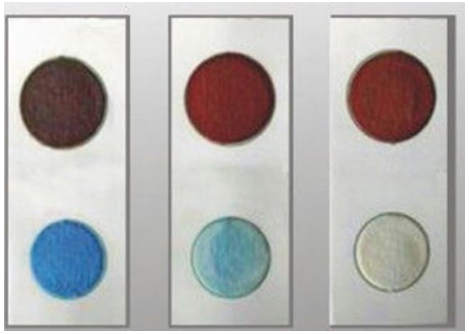
Key words: acetylcholinesterase; Pichia pastoris; enzyme activity determination; pesticide sensitivity

Research Summary

This article focuses on the expression of *Drosophila melanogaster* acetylcholinesterase splice variants (*DmAChE-like*) in *Pichia pastoris*, and has conducted the following research:

- **Enzyme activity determination**
- **Tricine-SDS-PAGE**
- **Optimal pH and temperature test**
- **Pesticide sensitivity test**

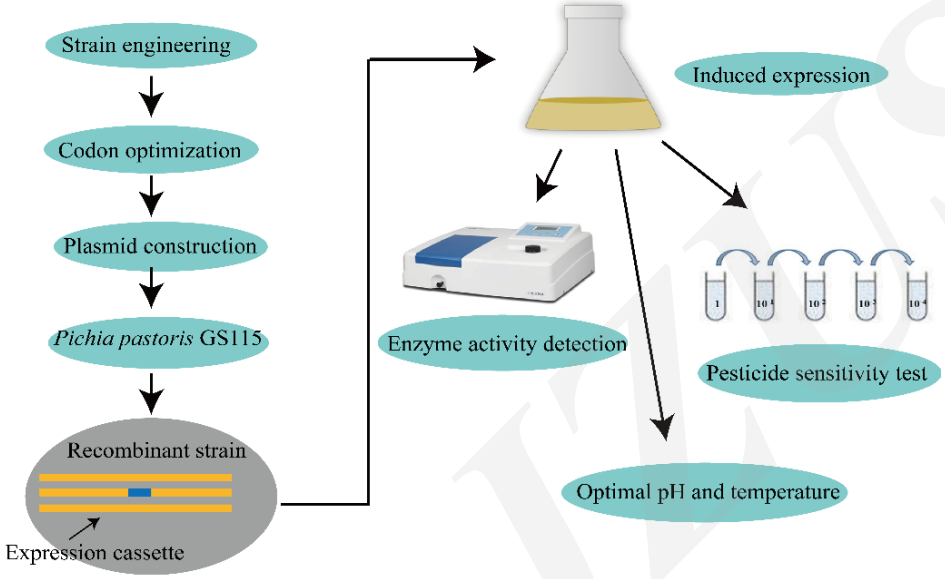




Pesticide Quick Test Card

Innovation points

- A **new** gene (*DmAChE-like*) was discovered and the genetically engineered strain GS115-pPIC9K-*DmAChE-like* was constructed



Graphical summary diagram of GS115-pPIC9K-*DmAChE-like* strain construction and subsequent expression and detection

- Proved that DmAChE-like has acetylcholinesterase activity.
- Found that DmAChE-like is sensitive to most selected organophosphorus pesticides

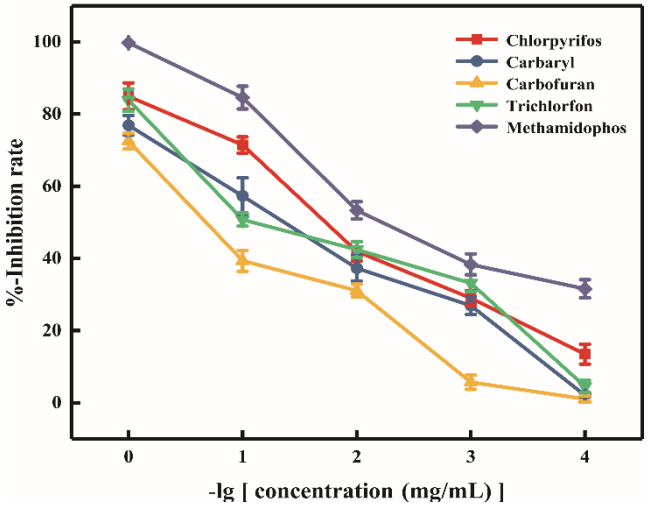


Fig.9-b