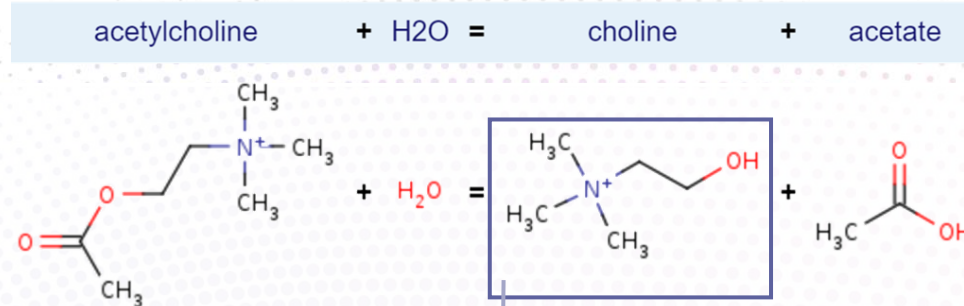


Sakinyte-Urbikiene I., Razumiene J., Gureviciene V. Butkevicius M., Galuzinska L.V.

ESTERASE

- Acetylcholinesterase (AChE);
- butyrylcholinesterase (BChE);
- carboxylesterase (CE);
- paraoxonase1 (PON).



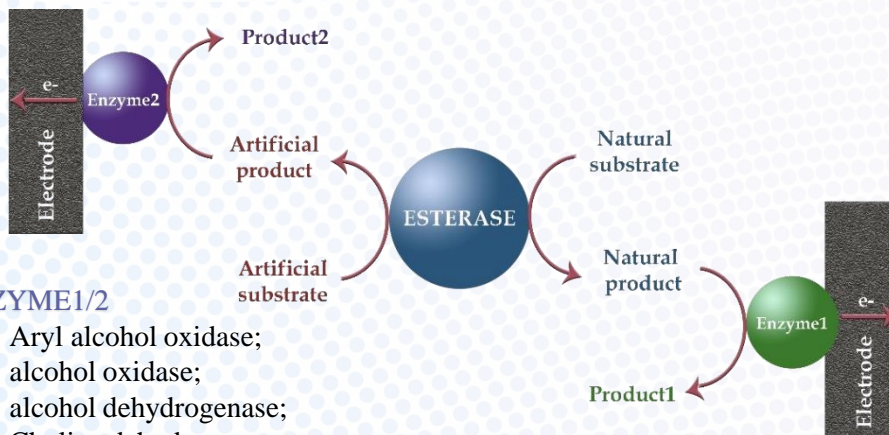
1 Figure. Acetylcholinesterase-catalysed hydrolysis

Amperometric biosensor based on choline oxidase, which catalyses the oxidation of choline and produces a secondary product, H_2O_2 . The amount of H_2O_2 simultaneously defines AChE activity.

ESTERASE ACTIVITY RELATED TO:

- inflammation process;
- Also
 - liver damage;
 - neurological disorders;
 - diabetes;
 - sleep apnea.

RESULT



ENZYME1/2

- Aryl alcohol oxidase;
- alcohol oxidase;
- alcohol dehydrogenase;
- Choline dehydrogenase.

2 Figure. Strategies for the electrochemical determination of esterase activity.

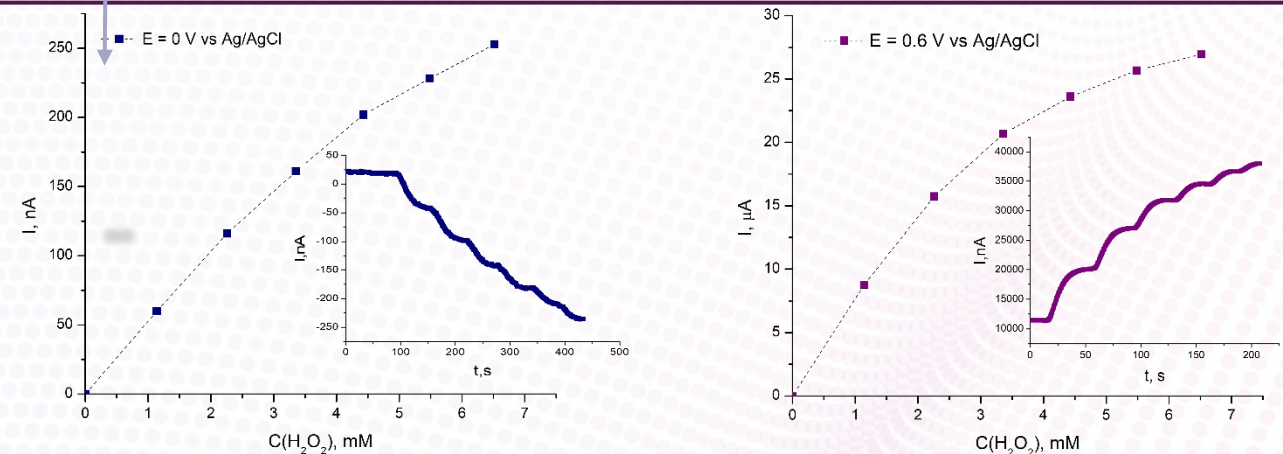


Figure 3. Dependence of steady-state current density (I) on H_2O_2 concentration, the inset shows current-time responses to 1.1, 2.2, 3.3, 4.4, 5.5 and 6.5 mM of H_2O_2 measured under potentiostatic conditions at 0 V (left) and 0.6 V (right) vs Ag/AgCl in a stirred PBS, pH 7.5, 20 °C.

CONCLUSION

Efficient H_2O_2 oxidation/reduction on the electrode surface is crucial for the use of oxidases as the biorecognition element for esterase activity measurements in body fluids.

ACKNOWLEDGEMENT

The present study was funded by the Research Council of Lithuania (LMTLT) under the LT-UA Cooperation Programme in the Fields of Research and Technologies (Project contract No is S-LU-24-12).