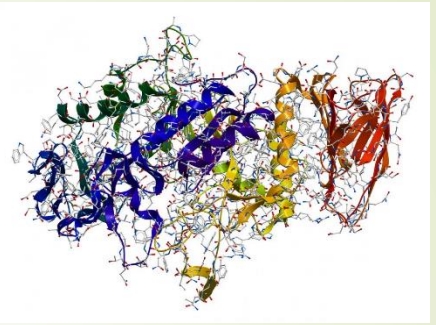


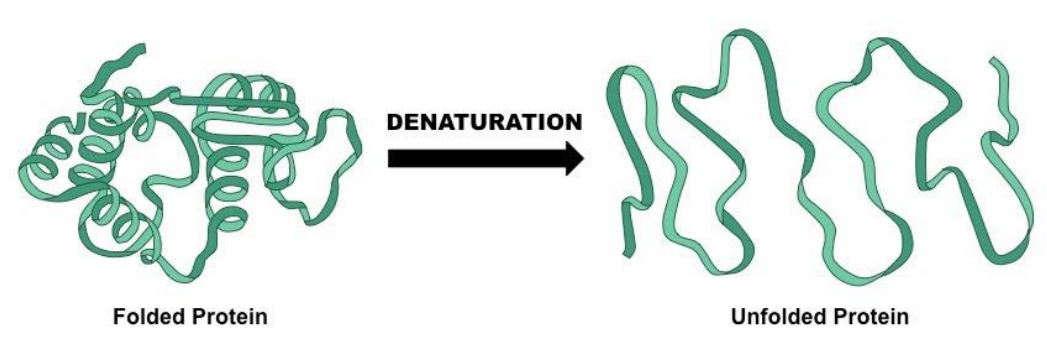
CEN-CHE 422
ENZYME ENGINEERING

ENZYME DEACTIVATION AND STABILITY

Stability: Capacity of the enzyme to retain its catalytic activity

Physical, chemical and biochemical factors (pH, temperature, additives)

Deactivation: Structural and catalytic



Physical Deactivation:

High temperature
Low temperature
pH
Mechanical forces

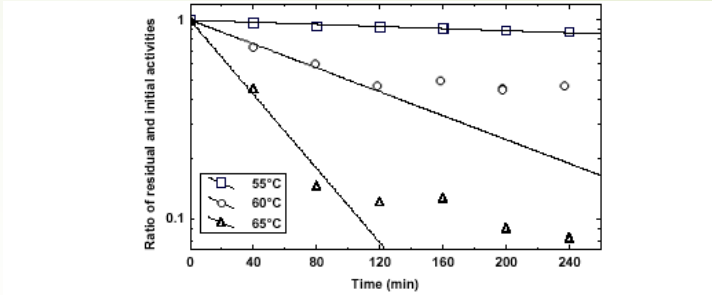
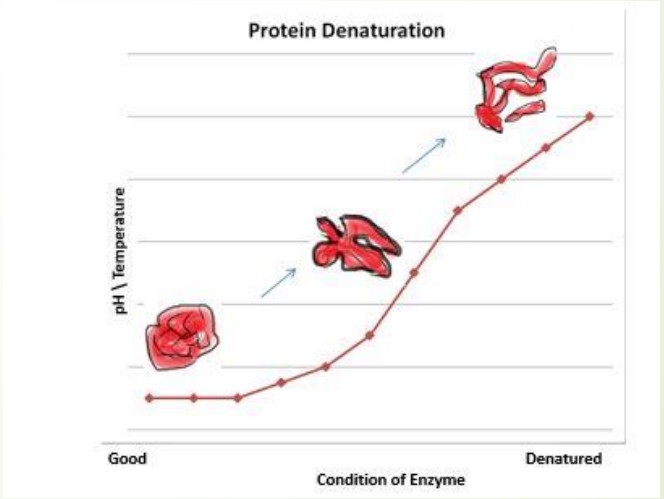


Figure 2: Immobilized invertase thermal deactivation data compared with the exponential d ecay model. One gram of the immobilized enzyme, containing 15.75 mg protein/g of support was incubated in 200 mL of substrate solution containing 5% (w/v) sucrose buffered with disodium phosphate-citric acid buffer 50 mM, at pH 4.5.

Biological inactivation :

Protease



Chemical deactivation:

Organic H-bond forming

Oxidants

Neutral salts :

Solvents

Stability

1. Genetic and protein engineering
2. Medium Engineering
3. Immobilization
4. CLEC
5. Additives
6. Chemical modification