Urease

Introduction

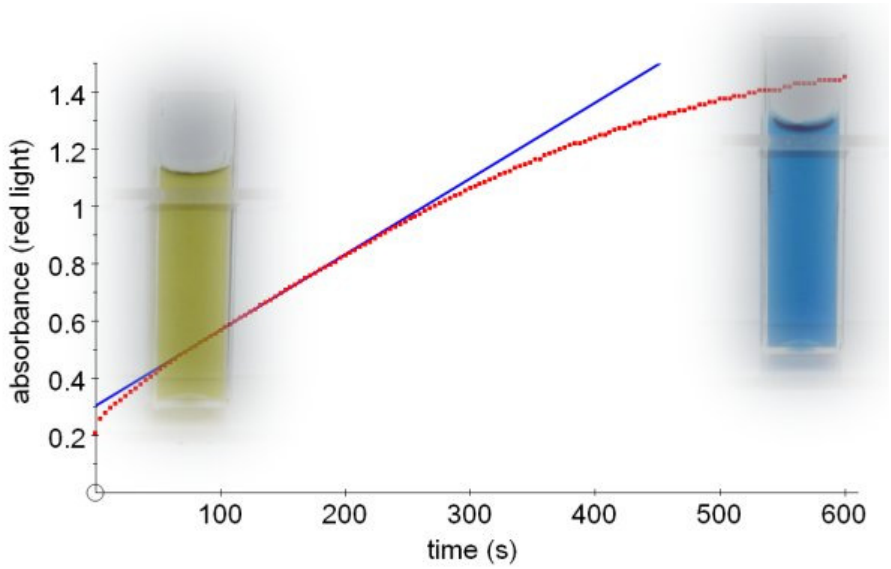
There are a number of different ways of measuring urease activity. The method described here uses bromothymol blue indicator which changes from yellow to blue as ammonia is released during the reaction.

Background

Urease from the jack bean (*Canavalia ensiformis*) was the first enzyme to be crystalised, for which discovery James Sumner was awarded a Nobel Prize for Chemistry in 1946. It breaks down urea into carbon dioxide and ammonia. A number of tests for urease utilise the fact that the ammonia released causes a rise in pH which can be detected with suitable indicators. The method described here gives good results with continuous colorimetry using bromothymol blue indicator which undergoes a change from yellow to blue as the pH rises from 6 to 7.6. The reaction can be followed by measuring the change in absorbance of red light with the colorimeter

Reaction mixture

We have obtained good results using a 0.01% w/v solution of bromothymol blue adjusted so that it is just yellow, pH about 6.0.
Jack bean urease is commercially available in powder or tablet form - the enzyme should be freshly prepared as it does not seem to keep well.
The results shown (*absorbance versus time*) were obtained at 25°C using 3cm^3 of 10mM urea containing 0.01% bromothymol blue and 0.2cm^3 of an enzyme solution made by adding one urease tablet to 80cm^3 of water.



More details, suggestions for investigations and sample results can be viewed on the *Mystrica* website, www.mystrica.com