Determination of the activity of a-amylase in the blood

- Equipment:Test tube rack. Measuring conical tube.1 ml and 0.1 ml pipettes.Thermostat..Spectrophotometer
- Reagents: Starch substrate. Iodine solution. Distilled water.Blood serum.
- The principle of the method. The method is based on the colorimetric determination of the decrease in starch concentration in samples after enzymatic hydrolysis in comparison with the initial level, which serves as a measure of amylase activity.
- Progress. 0.5 ml of starch substrate is poured into 2 test tubes (experimental and control samples). The experimental sample is heated at 37 ° C for 5 minutes, after which 0.01 ml of serum is added to it and incubated for 8 minutes at 37 ° C in a thermostat. Immediately after incubation of the experimental sample, add 0.5 ml of iodine solution to both test tubes and bring the volume of the samples to 5 ml with distilled water. Immediately colorimetrate them with a red filter in cuvettes 1 cm thick against water.

- The a-amylase activity is calculated by the formula:
- $(E_C - E_T) / E_C * 66,6 =$ mg starch hydrolyzed by 1 liter of whey per 1 second of incubation (s/l), where
- E_C is the optical density of the control sample,
- E_T is the optical density of the test sample,
- 66,6 - conversion factor for the amount of starch in g, hydrolyzed by 1 liter of whey per 1 second of incubation.
- The rate of amylase activity in serum is 3,3-8,9 mg / l per second.


Test sample


Control

Variants	The optical density of the test sample	The optical density of the control sample
Variant 1	0,7	0,75
Variant 2	0,6	0,75
Variant 3	0,73	0,75
Variant 4	0,42	0,6
Variant 5	0,53	0,6
Variant 6	0,59	0,6
Variant 7	0,27	0,5