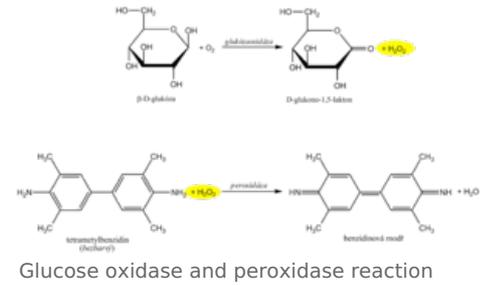


Determination of glucose in urine

Diagnostic strips for the detection of glucose in urine are based on the principle of enzyme reactions with glucose oxidase and peroxidase (the same principle as glycemic determination). D-glucose is oxidized by oxygen using glucose oxidase to form D-glucono-1,5-lactone and hydrogen peroxide. In the subsequent peroxidase reaction, hydrogen peroxide oxidizes tetramethylbenzidine or another chromogen to color product. The light yellow color of the reaction surface changes to blue-green when positive. The test is specific for D-glucose, other sugars do not give a positive reaction.

High concentrations of reducing agents such as ascorbic acid slow color development and may lead to falsely lower results. In these cases, it is recommended to repeat the analysis at least 10 hours after stopping vitamin C. Conversely, false positive results may be caused by the presence of peroxidase substrates or oxidizing agents in the sampling container (e.g. H₂O₂, Persteril®, chloramine B). Urine glucose determination must be performed quickly to avoid bacterial contamination or urine stored at 4 °C.



Interference with ascorbic acid is a frequent source of false negatives. Diagnostic urine test strips from some manufacturers are therefore modified so that the reaction zone is at least to some extent resistant to ascorbic acid. Some diagnostic strips also have a detection zone for ascorbate to alert you to the possibility of a false negative.

Links

Related Articles

- Glucose in the urine
- Urine/chemical examination