Does Salinity Affect Lactase Effectivity?

Leonard, Herbert

Lactase is an enzyme that breaks down lactose into the simpler monosaccharide glucose. If plant sugar-digesting enzymes are affected by salinity, then lactase, an animal sugar-digesting enzyme, should also be affected. Since higher levels of salinity usually denature proteins, if salinity is increased, then the measurement of glucose should decrease because the amount of lactose broken down in a given time would decrease. To test this, beakers/flasks were filled with a 4.8 lactose solution and a specified level of salt, one, three, five, or seven percent. Then, .5 grams of lactase was added to each flask and allowed to react for five minutes. Using glucose test strips, each solution was then measured and the process was repeated two more times. The results showed a general positive trend suggesting that as the salinity increased so did the glucose concentration. After performing statistical tests, it is with fair confidence that salinity definitely had an effect on the lactase, but not in the predicted way. This could be due to optimization of the enzyme at different levels of salinity.

Awards Won: