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### *Yeast: CO<sub>2</sub> Output Using Natural and Artificial Sweeteners*

My question was how artificial sugars affected carbon dioxide output in yeast compared to natural sugars. I hypothesized that artificial sugars wouldn't work as well because they had different chemical structures than natural sugars. I dissolved sugar in 115° water and added baking yeast. I used Equal(aspartame), Sweet 'n Low(saccharin), Splenda(sucralose), Sun crystals(a plant extract called steviol), sugar(sucrose), and honey(fructose and glucose). I did 3 tests per sugar and my results were not what I expected. Honey, sugar and equal were very close in results. Sun crystals had a high ppm, higher than the rest of the natural sugars. Sweet 'n Low was 300 ppm lower than honey. Splenda was the weirdest. I thought it might get closer to sugar since it had the same structure except for 3 added Chlorine atoms and minus 3 OH groups, except it was only better than water. Possibly the atoms killed the yeast because it is a toxic substance. The yeast was unable to metabolize some of the odd atoms such as nitrogen and sulfur so it used the carbon and oxygen to create more CO<sub>2</sub> because it couldn't utilize all of the molecule. It was unable to take the sweeteners apart and starved. My project is important because with all the artificial sugars out on the market today, you would think some research would have been done to test the consequences of ingesting these sugars. The fact is, very few tests have been done to ensure their safety. What are you eating?