Name(s)	Project Number
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Project Title

One Step Closer to Ending Diabetes by Choosing the Right Variety of Rice

Abstract

Objectives/Goals
My objective is to find the type of rice with the lowest amount of starch for people who have diabetes.

Methods/Materials
Materials- Pressure cooker, jasmine rice, basmati rice, parboiled rice, raw rice, sticky rice, cornstarch, tincture of iodine, five 10 ml graduated test tubes, test tube rack, 96 well microplates, 2 small cups, scale with gram measurements, two 0.1-1 ml graduated glass pipettes, computer, printer with scanner, RGB color picker software, gloves, and goggles.

Methods- 1 gram of cornstarch was mixed in 100 ml of hot water. The solution was serially diluted in 5 test tubes. 0.2 ml iodine solution was mixed with 6 ml of water to make an indicator solution. 0.1 ml of each of the serially diluted solutions were added to the 96 well plate in triplicates and 0.2 ml iodine indicator solution was added to each well. The plate was scanned and the RGB data was analyzed for each dilution and made into a standard calibration curve. Quarter cup of rice was cooked with half a cup of water in pressure cooker. 1 gram of rice was weighed, mashed and then mixed in 100 ml of water. 1 ml of rice solution was taken and mixed with 1 ml of water. 0.1 ml of the diluted rice solution was added in the microplate and 0.2 ml of the iodine indicator solution was added. The plate was scanned and the RGB analysis was performed. Then the standard curve was interpolated to find the starch concentration. This was repeated with all rice varieties in triplicates.

Results
Several varieties of rice were tested multiple times with the calibration standards to find the one which had the lowest amount of starch. Parboiled rice had the lowest amount of starch followed by millet and raw rice which were all under 13 grams of starch per quarter cup of rice. The other 3 varieties tested had almost 5 times more starch.

Conclusions/Discussion
With my experiment, I found how much starch is in different varieties of rice. Switching from sticky rice to parboiled can significantly lower the risk for diabetes. People who do not like to eat parboiled rice every day, can try raw rice or millet, which had comparable amounts of starch. It gives a new taste without too much of starch either.

Summary Statement

With my project, I found which variety of rice would be best for people who have diabetes or are prone to having it.

Help Received

I would like to thank my mom for teaching me how to make standard calibration curves . I would like to thank my aunt for helpful discussions regarding different cooking methods.