People's Palatability Preferences of Gluten-Free Pie Crust Flours

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Twenty-five percent of Americans follow a gluten-free diet (Reed, 2020). In the food industry it is important to create products that are both palatable and digestible for these gluten-free individuals. The goal of this project was to create a gluten-free flour that would score the highest in palatability, have the greatest mass loss indicating digestibility, and have the least amount of digestive symptoms. Five types of flour tapioca, almond, coconut, sorghum, potato, and four gluten-free flour blends were used. Pie crusts were sampled by 138 participants. Participants ranked their preferences on a 5-point Likert scale survey. An hour after consumption, participants answered a digestion questionnaire. In a separate digestibility test, the crusts were placed in glass containers filled with 30 mL of gastric juice and placed on a rotator for seven hours. Samples were dried for three days, then pre and post masses were compared in grams. Data was analyzed using unpaired t-tests. The blends scored significantly higher for overall palatability, flakiness, and texture. Blend two and three taste scores were significantly higher than the other flour types as were blend one and three doneness scores. In the digestion trials, coconut flour had a greater mass loss than the first blend. The first blend had the lowest average score on the digestion side effects survey. The researcher successfully created a blend that met all of the palatability criteria and had the least amount of digestive symptoms for gluten-free consumers.

Awards Won: