

Nataara Tamada

Senior Division Plant Sciences

Healthy Potatoes: Searching For A-Amylase Inhibitor And RS In Cultivars To Lower The Glycemic Index

Is there a potato cultivar that has a higher level of α -amylase inhibitor combined with a high level of resistant starch as compared to other cultivars? My hypothesis will be able to identify the difference in cultivars for levels of α -amylase inhibitors and resistant starch. The procedure I used was to look for α -amylase inhibitor and a higher amount of resistant starch in 18 different varieties. My data showed out of the 11 potato cultivars tested, varying levels of alpha amylase inhibitor and resistant starch was observed, potato cultivar # 14-03D21 contained the highest amount resistant starch (0.1295 grams/dw) while 21-CAN11 contained the least amount of resistant starch (0.009 grams/dw). Estimation of alpha-amylase inhibitor levels in 11 potato cultivars was carried out using leaf samples. Alpha amylase inhibitor levels were estimated based on the extent of starch hydrolysis inhibition of alpha amylase. Highest inhibition to starch hydrolysis was observed with cultivar 13-02B31 (0.358 gm) and the lowest inhibition to starch hydrolysis was 47-04B81 (1.451 gm). The conclusion I came to was that potato cultivars vary in their alpha-amylase inhibitor levels and resistant starch. This holds the possibility that these cultivars could lower the human glycemic index. The next step for my research would be to do human testing of these tuber types to determine the effects on glucose levels and ultimately the glycemic index.