

## **The effects of baking on trypsin inhibitor activity in soy bread**

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Despite the many health benefits associated with soy-containing foods, the nutritional value of this ingredient can be diminished by anti-nutritional factors, such as trypsin inhibitors. These protease inhibitors, highly prevalent in soy, bind strongly to the digestive enzyme trypsin, hindering its ability to break down proteins. This anti-nutritional activity is an important consideration in the development of soy-based functional foods. Our hypothesis was that the heat treatment in baked goods is sufficient to deactivate the trypsin inhibitor. Therefore, the aim of this research was to study the effects of baking on the activity of trypsin inhibitors in soy ingredients and a novel soy bread created by food scientists at OSU. Proteins were extracted using a sodium hydroxide solution. The resulting crude extract was incubated with trypsin and benzoyl-DL arginine-*p*-nitroanalide (BAPA), and the solution absorbance was measured at 410 nm. Thus far, soy flour displays minimal trypsin inhibitor activity, evidence that the manufacturing process of the flour may be sufficient to denature inhibitors. Based on these preliminary results, it is hypothesized that the soy milk powder will not contain inhibitors, due to similar manufacturing conditions. Additionally, it is expected that any residual inhibitor activity in soy bread will be reduced due to the baking process. Initially, inconsistent results obtained from the reference method (AACC 22-40) due to possible interference from lipids, pH, and solution turbidity. Currently, experiments are being completed to optimize the assay for this soy system.