

## **Biological Activity of Peanut Skins as a Functional Food Ingredient**

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Postprandial glycemic control is very important in both the prevention and management of diabetes. Dietary phenolic compounds have been shown to have a beneficial effect on the management of blood glucose levels. Peanut skins, a major byproduct of the peanut industry, are rich in phenolic compounds that may have an effect on the hyperglycemic response. The aim of this study was to evaluate the effect of the phenolic extract from peanut skins on the glycemic response in humans to 50 grams of glucose. The phenolic compounds were extracted from peanut skins using 70% ethanol. This peanut skin extract was then encapsulated in maltodextrin through spray drying. This encapsulated extract was then split in two; half was put into a vegi-capsule and the other half was incorporated into a chili lime flavored coating that was applied to roasted peanuts through a panning process. Fifteen participants aged 21-32 underwent an oral glucose tolerance test with five treatments: 1) 50 g glucose solution (reference); 2). 50-gram glucose solution, followed by 12 mg of vegi-capsulated maltodextrin (placebo); 3) 50-gram glucose solution, followed by 120 mg of vegi-capsulated maltodextrin-encapsulated peanut skin extract (Treatment 1); 4). 50-gram glucose solution, followed by 28 grams (1 serving) of unfortified coated peanuts (Treatment 2; 5) 50-gram glucose solution, followed by 28 grams of chili lime coated peanuts fortified with encapsulated peanut skin extract (Treatment 3). Glucose levels of each subject were measured using a continuous glucose monitor. The glycemic response to each treatment was assessed by calculating the area under the 2.5- hour blood glucose curve using the trapezoidal method. The glycemic profile was also calculated by dividing the incremental blood glucose response by the post-prandial glucose peak. The addition of peanut skin extract and peanut skin extract fortified peanuts to the 50-gram glucose solution did not have a significant on the area under the curve. However, they did significantly lower the peak glycemic response, indicating that it has an effect on glycemic control and regulation. Peanut skin extract also caused an increase in the glycemic profile, further suggesting that it acts by facilitating glucose regulation. This research further confirms that peanut skin can be used as a functional food ingredient and add nutritional value to food.