Using Spices to Inhibit the Formation of Carcinogenic Heterocyclic Amines in Grilled Chicken

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Recently, fast food chains and local restaurants around the nation have been changing their menus from fried and breaded meat products to grilled meats. This change, while meant to be positive and healthy, can actually be harmful to your health. This is due to carcinogens, or cancer causing chemicals that form with high cooking temperatures and an open flame. In other ways, grilled meat can be healthier, so I wanted to find out if the carcinogenic content can be reduced. My experiment was marinating grilled chicken with different spices to see if the carcinogen levels are impacted, and if so, which one has the most significant impact. I marinated three pieces of chicken with different spices: cumin, turmeric, and rosemary, and also prepared a control piece without any spices. A researcher I was in contact with helped me complete a liquid chromatography-mass spectrometry test on the samples to find the concentration of a chemical called PhIP, which is the specific carcinogen formed in grilled chicken. Analysis of the data showed the sample marinated with rosemary having the greatest impact on the PhIP levels, reducing it by around 60% when compared to the control sample without any spice. Marinating meat with spices before grilling can impact the concentration of carcinogens and make your meal even healthier.

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