

Spicing the Meat Also Cuts the Cancer Risk

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(PhysOrg.com) -- Spices will do more than just enhance the taste of ground beef. They'll also cut down on the risk of compounds that can cause cancer.

J. Scott Smith, a Kansas State University [food chemistry](#) professor, has pursued different projects in recent years seeking ways to reduce heterocyclic amines (HCAs). HCAs are the carcinogenic compounds that are produced when muscle foods, such as ground beef patties, are barbecued, grilled, boiled or fried. Consuming HCAs through meat increases risk factors for colorectal, stomach, lung, pancreatic, mammary and prostate cancers.

Smith, in research supported by the Food Safety Consortium, found that certain [spices](#) containing natural antioxidants would reduce HCA levels by 40 percent when applied to beef patties during cooking.

“Cooked beef tends to develop more HCAs than other kinds of cooked meats such as pork and chicken,” Smith said. “Cooked [beef](#) patties appear to be the cooked meat with the highest mutagenic activity and may be the most important source of HCAs in the human diet.”

Previous studies have shown that meat products cooked below 352 degrees Fahrenheit for less than four minutes had low or undetectable levels of HCAs, with HCAs increasing with higher temperatures and added cooking time. It's not a good idea to lower cooking temperatures too much, so antioxidant spices with phenolic compounds can block HCAs before they form during heating and still allow high temperatures

to be maintained.

Smith's research team investigated six spices - cumin, coriander seeds, galangal, fingerroot, rosemary and tumeric - and found that the latter three had the highest levels of antioxidant activity toward inhibiting the formation of HCAs, with rosemary as the most effective.

Consumers can take advantage of the spices by integrating them into their cooking regimen. Previous research in his laboratory has demonstrated that some commercial rosemary extracts, available for purchase on the Internet, can inhibit HCA formation by 61 to 79 percent. Smith's earlier work also showed that Thai spices can inhibit HCA formation by 40 to 43 percent.

Smith said future research in this area will investigate what some marinades or powders can do to inhibit HCAs when applied to a cooked patties. His earlier project showed that marinating steaks with certain herbs, rosemary and other antioxidant spices also reduces HCAs.

Provided by University of Arkansas

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