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INHIBITION OF THE FORMATION AND ACTION OF HETEROCYCLIC AROMATIC AMINES

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Heterocyclic aromatic amines (HCAs) are established genotoxic human cancer risks, that display their activity also in a number of animal models and *in vitro*. They are formed during the frying or broiling of creatinine-containing foods, mainly fish or meat. We established that mixing soy protein with ground meat blocks the formation of HCAs. We also observed that coating the surface of meat with polyphenols green or from black tea gives a dose-related reduction of the formation of HCAs. These compounds are metabolized to C-hydroxy forms that constitute detoxified metabolites, but N-hydroxylation yields reactive mutagens and carcinogens. We further find that administration of black or green tea induces phase II enzymes, specifically glucuronosyl transferases, that detoxify the active forms of HCAs and lead to their excretion as glucuronides. Thus, a number of methods exist to reduce the impact of HCAs in the nutritional environment of humans, and to detoxify these hazardous chemicals.