

Heterocyclic Amines Formation in Thermally Processed Meat and its Reduction using Various Edible Condiments

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Abstract

Heterocyclic amines (HAs) are identified as a food borne carcinogens and occurred in protein-rich foods for instance meats and fish during the cooking process [1, 2]. In this work, the influence of different edible condiments (tomato, olive oil and green pepper) on the formation of HAs in cooked meat (chicken) were studied. The meat samples were fried under controlled cooking temperature, the level of HAs 2-amino-3,8-dimethylimidazo[4,5-*f*]quinoxaline (MeIQx), 2-amino-3,4,8-trimethylimidazo[4,5-*f*]quinoxaline (4,8-DiMeIQx), 2-amino-1-methyl-6-phenylimidazo[4,5-*b*]pyridine (PhIP), were indentified from 1.88 to 25.42 ng/g, while, HAs 2-amino-3-methylimidazo[4,5-*f*]quinoline (IQ), 2-amino-3,4-dimethylimidazo[4,5-*f*]quinoline (MeIQ) were obtained either below limit of quantification or not detected in control sample. However, in the meat samples thermally processed by edible condiments, the concentrations of HAs MeIQx, 4,8-DiMeIQx, and PhIP, were achieved from 0.23 to 3.52 ng/g, whereas IQ and MeIQ were not detected in any meat samples. The outcomes from the present study illustrated that the occurrence of HAs was inhibited in the samples cooked with edible condiments. These results suggest that chicken meat is a important dietary source of HAs and can be utilized in epidemiological investigations to estimate HA exposure from nutritional questionnaires.

Keywords: Heterocyclic amines; Cooked meat; Edible Condiments; Ultra-Performance Liquid Chromatography-Mass Spectrometry

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