

Heterocyclic aromatic amines in deep fried lamb meat: the influence of spices marination and sensory quality

ABSTRACT

The present study was focused to investigate the effect of selected spices (turmeric, torch ginger, lemongrass and curry leaves) on the formation of heterocyclic amines (HCAs, IQx, MeIQ, MeIQx, DiMeIQx, IQ, harman, norharman, and A C) in deep fried lamb meat. Meat samples were marinated with optimized levels of turmeric (4 %), 10 % each of torch ginger, lemon grass, curry leaves at medium (70 °C) and well done (80 °C) doneness temperatures. The concentration of HCAs in deep fried meat samples were analysed using LC-MS/MS technique. The results revealed that torch ginger (10 %) has reduced 74.8 % of MeIQx (1.39 to 0.35 ng/g) at medium doneness, followed by the 64.7 % reduction, using curry leaves and turmeric at medium degree of doneness. Torch ginger has reduced 86.6 % of A C (2.59 to 0.40 ng/g) at well done doneness. The most prevalence level of HCAs was found in deep fried meat i.e. DiMeIQ (3.69 ng/g) at well done doneness. The sensory evaluation, using a 7 point hedonic test design for colour and texture in deep fried meat samples were resulted in a preferred color of golden brown and slightly tough texture. The use of local spices in marinating of deep fried lamb meat samples will certainly inhibit/reduce the level of these toxic and harmful HCAs.

Keyword: Local spices; Lamb meat; HCAs; Sensory quality; LC-MS/MS