CARCINOGEN in HEAT

Prosessed Foods in Malaysia

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- **Food is an important factor in determining cancer incidence in many countries and regions.**
- **The International Agency for Research on Cancer (IARC) has concluded that these cooked food toxicants particularly polycyclic aromatic hydrocarbons (PAHs) and heterocyclic amines (HAs) present in cooked foods are carcinogenic to humans.**
- **The quantity of adducts formed has shown to reflect biologically effective dose and suggest a lik to cancer risk.**

figure 1 - PAH

What is PAH ?

- PAHs are group of potent carcinogens (substances that can induce cancer) that are present in various food products.
- PAHs has formed incomplete combustion processes which occur whenever charcoal, coal and oil are burnt.
- The possible sources of PAHs in food are thermal treatment of varying severity which is used in the preparation and manufacturing of food, the absorption and deposition of particulates during food processing such as smoking, grilling, boiling and toasting, the pyrolisis of fats and the incomplete combustion.
- PAHs are usually adhered to the surface of foods such as meat, fish or other foods which are grilled over a direct flame and produce fat dripping on the hot fire and flames.

figure 2 - HA

What is HA ?

- HAs are an important group of food carcinogens. At present, 20 HAs has been isolated and identified in proteinaceous foods after the thermal processing including household cooking.
- The reactions involved creatine, free amino acids and monosaccharides, which are present in meat and fish products, and depend on precursor concentration, time and temperature of cooking and water content.
- HAs are found in meat, poultry and fish that have undergone pan-frying, roasting, baking, barbequing, deep-fat frying and grilling, the compounds have been shown to have an extremely mutagenic potency, 100 to 100 000 times higher than PAHs.

Objectives

a) To identify ways or conditions to prevent or reduce the consumption of carcinogens from heat-processed foods by Malaysians.

b) To develop Code of Practice for cooking.

c) To evalute conditions which promote the carcinogens (PAHs and HAs) formation during cooking and processing of Malaysian foods.

d) To develop dietry exposure levels of heart-processed foods consumption in Malaysia through safety risk assessment.

e) To produce guideline for heart-processed foods for cancer prevention.

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