

Studies on poly aromatic hydrocarbons in wood smoke and smoked fish

Mohan I.M. Lokuge^{1*}, Y. Sulthanbawa² and A. Bamunuarachchi³

¹136/1, Borala Road, Weligama, Sri Lanka.

²Industrial Technology Institute, Colombo-07, Sri Lanka.

³Department of Food Science and Technology, University of Sri Jayewardenepura, Sri Lanka.

Abstract

Fish smoked using wood smoke is popular all over the world although there is evidence to show that wood smoke contains mutagenic and carcinogenic poly aromatic hydrocarbons (PAH). In Sri Lanka, sufficient studies have not been carried out to determine the PAH emission of the existing smoking methods. This study investigates whether the existing smoking methods and wood species used for smoking are safe in relation to the PAHs present. In this study, PAH emissions of five wood species, namely, Mango, Jak, Coconut Shells, Cinnamon and Madan (*Zyzigium*) and the PAH content of fish smoked using two of the above wood species (Cinnamon and Jak) were measured by HPLC. The smoking was carried out using a locally built smoker which simulated the smoking practices in rural areas. Smoke generated by all five wood species contained PAHs in large quantities and high levels were also detectable in the smoked fish. Findings of this study reveal that the local fish smoking practice of directly exposing to flue gas generates large amounts of toxic PAHs and can hence be considered as extremely unsafe in relation to PAH toxicity.

Keywords: Carcinogenic, HPLC, PAH, Smoked fish, Wood Smoking

*Corresponding author - Email: mohan.lokuge@gmail.com