

**EFFECT OF COMBUSTION MATERIAL ON
CHEMICAL AND SENSORY PROPERTIES OF
SMOKE-DRIED *Catla catla* (CATLA)**

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by

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ABSTRACT

Fish is considered as a nutritious but highly perishable food. For the purpose of ensuring long shelf life, it is preserved in many methods. Smoking is considered as one of the traditional yet highly used method to preserve fish commercially. But no such conditions have been developed for catla in Sri Lanka. This study was conducted to select best smoking condition with least cost and higher keeping quality for *Catla catla* (Catla). Medium size (6-8 kg) male fish were collected from a local reservoir in Monaragala. All treatments were done at 45 °C for 2 to 4 hours. Albizia, cinnamon, mahogany and straw were selected as the combustion materials as with availability and cost. Quality of smoked fish in each treatments was evaluated for sensory parameters by 7 point hedonic scale using 30 untrained panelist in the age of 21-25 years in both sex. According to the sensory results, paddy straw was selected as the most suitable main combustion material ($p < 0.05$). Then combinations of paddy straw and other materials were evaluated (Albizia, Cinnamon and Mahogany with 0, 5, 10, 15, and 20%). According to the sensory data, 5% (w/w) cinnamon and 15% (w/w) Mahogany was selected and in final sensory evaluation revealed 15% (w/w) Mahogany as the best ($p < 0.05$). Smoke generated in selected treatments were collected directly from smoking chamber as gaseous form and analyzed for volatile compounds under GC-MS. As biochemical parameters, anti-oxidants and pH were analyzed for selected smoked product. Contamination of *Escherichia coli* spp. (*E coli*) and *Salmonella* spp. were examined in 25g of sample as the bacterial parameters. GC-MS data showed the smoke generated contain furans, acetic and propanoic acids, ketones, phenols and D-glucopyranose which may have improved the flavour, colour, texture and the keeping quality of the final smoked product. pH of the product varies from 5.87 ± 0.19 to 6.22 ± 0.24 while oxidation results (TBARS and DPPH assay) reveals the product can be stored for 14 days under -18 °C under LDPA normal sealed packaging conditions. Microbiology data confirmed the product is free from *E coli* and *Salmonella* spp. However further improvements can be done with different packaging conditions and combination with different spices to the final product.

Keywords: Smoked fish, Catla, Chemical properties, Sensory properties