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A Potential Risk to Human Health in Form of Chemical Contaminants Present in Smoked Chicken

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Foods like meat and poultry are rich in essential nutrients like highly biologically active proteins, B vitamins, minerals, trace elements, and other widely recognized bioactive substances. Veterinary medications, environmental pollutant residues, and chemicals produced during meat processing can all contaminate poultry meat. Antimicrobials are frequently used to cure and prevent disease, preserve the well-being of all treated chickens, promote growth, enhance the quality of the meat, and lower production costs. It should be a continuing concern to monitor these pollutants in ready-to-eat meals with animal origins. Togo is one of the West African nations with weak legislation governing harmful pollutants in food. This study's goal was to evaluate the levels of cadmium, lead, antibiotic residues, total phenols, and PAHs contents in traditionally smoked chicken meat retailed to consumers.

A total of 32 smoked chicken samples were collected from the main open markets in the city of Lomé. The amount of total phenol was calculated following AFNOR. In a nutshell, samples' phenolic components were extracted into ethanol. The solvents and chemicals were all of HPLC quality. Both acetone and acetonitrile (ACN) were supplied by Honeywell (Muskegon, MI, USA) (Westchester, PA, USA). Data collection and analysis were performed using the MassHunter workstation application. The following settings were used for chromatography separation. The injection needle and valve were flushed using a needle wash. Xlstat version 2015.6.08 was used for the data description. When necessary (Compliance tests comparison to a theoretical value), the values were compared to the Maximum Residue Limit (MRL) at $p>0.05$.

Four of the eight antibiotics were discovered in the sample of smoked chicken, according to the study; four more were not detected at measurable levels. These included Amprolium, Metronidazole, Sulfadiazine, and Danofloxacin Mesylate. The four antibiotics identified in the samples come from two classes of medications: Tetracyclines (Oxytetracycline, Chlortetracycline, and Doxycycline) and Fluoroquinolones (Ciprofloxacin). Regulations issued by the European Union were applied in this investigation because Togo has no national laws governing pollutants in food. The rate of smoke deposition and penetration, which is affected by several variables including temperature, humidity, volatility, and smoke velocity, is the cause of the stated contents' variability. Therefore, heat treatment could not be an alternative to controlling the use of antibiotics. Only the applications of strict measures to keep flocks on the farm until the withdrawal period has elapsed and the prevention of the misuse of

antibiotics in poultry farms could solve the problem of human exposure to residues of antibiotics.

The current study brought attention to a possible threat to human health posed by chemical pollutants found in smoked chicken consumed in Lomé (Togo). While the cadmium and antibiotic residues were within acceptable limits based on their MLRs, the lead contents were beyond the maximum allowable level. The use of antibiotics in chicken farms should be limited and controlled by veterinary authorities.

To guarantee proper withdrawal times before slaughter and marketing, antibiotic usage regulations should adhere to Antimicrobial and plant-based probiotics are excellent antibiotic substitutes that can be used.

JOURNAL REFERENCE

A.D. Akakpo, K.J. Ekpo, K.M. Aziato and E.G. Osseyi, 2021. Chemical contaminants in traditionally smoked chicken sold in the open markets of Lomé. Int. J. Poult. Sci., 20: 136-144.

KEYWORDS

Traditionally smoked chicken, heavy metals, antibiotics residues, phenol, polycyclic aromatic hydrocarbons