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Mycoflora and aflatoxin levels of edible vegetable oils sold in Nigeria and possible control measures using imarsil and activated charcoalFlora Oluwafem¹, Oni E O¹ and Kolapo A L²¹Federal University of Agriculture, Nigeria²The Polytechnic, Ibadan, Nigeria

Edible oils play vital role in a well-balanced diet. However, the infestation of most edible oils by mycotoxigenic moulds possesses high health risk for humans and animals. It thus necessitates the need to screen the oils and detoxify those using local and inexpensive adsorbents. Ten samples of edible vegetable oils from different plant sources such as canola, palm-kernel, sunflower, olive, groundnut, soya-beans, coconut, cotton seed, palm and corn oils were purchased from Nigerian markets and assessed for fungi and aflatoxins levels using standard microbiological procedures and High-Performance Liquid Chromatography (HPLC) respectively. Adsorption studies of Aflatoxins (AF) were performed on the AF positive oils using *imarsil* and activated charcoal at 2 and 3 % concentrations. Sensory evaluation of treated and untreated oils was also carried out using 10 members panel. Prevalence of isolated fungi were: *Aspergillus fumigatus* (43%), *Mucor sp* (17.9%), *Saccharomyces sp* (10%), *A. niger* (7.1%), *A. oryzae* (7.1%), *A. flavus* (7.1%), *Penicillium sp.* (7.1%) and *Rhizopus sp.* (3.6%). Seven samples were positive for AF. Cotton oil, Sun-flower oil and Canola oil had no detectable AF levels while Corn oil, Coconut oil, Olive oil, Soya oil, Palm kernel oil, Palm oil and Groundnut oil had the following aflatoxin concentrations respectively ; 157ng/kg, 49ng/kg, 33ng/kg, 28ng/kg, 9ng/kg, 5ng/kg and 4ng/kg. At ≤ 9 ng/L AF contamination rate, both *imarsil* and activated charcoal exhibited 100 % adsorption efficiency within one hour. At AF contamination rates of 28-157 ng/L, activated charcoal was not effective while *imarsil* had 100 % removal efficiency within 3 hours. Sensory evaluation results showed *imarsil*-treated vegetable oil had good organoleptic properties while activated charcoal –treated vegetable oils had off-flavour. Aflatoxins present in some vegetable oils can be eliminated using *imarsil*.

foluwafemi2000@yahoo.co.uk

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