

ABSTRACT

The large scale use of pesticides during agricultural practices may lead to the accumulation of these toxins within various environmental compartments, such as water, soil, atmosphere, etc. These chemicals also tend to accumulate in the biomass of not only the crops but also travel through livestock and finally pose a threat to their final consumer, the humans. The present study was planned to measure the bioaccumulation of insecticides, such as Chlorpyrifos and Endosulfan in beef and mutton collected from various cattle farms and open markets in the city of Lahore Punjab, Pakistan.

Triplicate samples of muscle, liver and lungs of (beef and mutton) were collected on quarterly basis throughout 2014 from 3 selected sites, viz: open market (butcher's shops at Chauburji), PAMCO outlet, and Zenith outlet. These samples were transported to the laboratory of the Department of Zoology, Government College University, Lahore.

The collected samples were processed (ethyl acetate and anhydrous sodium sulfate digestion method) for subsequent analysis by thin layer chromatography (TLC) and spectrophotometry; TLC confirmed the presence of pesticide residues in the samples, whereas determination of the concentrations showed variable results.

In mutton samples, maximum concentration of Chlorpyrifos was found as 0.894 mg/kg in PAMCO samples whereas its minimum concentration was .005 mg/kg in open market samples. However, both the maximum and minimum Endosulfan concentrations in open market samples were 12.943 mg/kg and 4.536 mg/kg respectively.

In beef samples, maximum concentration of Chlorpyrifos was found to be 0.581 mg/kg in PAMCO samples whereas its minimum concentration was .002 mg/kg in Zenith samples. However both the maximum and minimum Endosulfan concentrations in open market samples were 15.908 mg/kg and 5.682 mg/kg, respectively.

Thus, overall Chlorpyrifos concentration in mutton and beef samples of PAMCO was high than both Zenith and Open market samples. However, Endosulfan concentration in mutton and beef samples was higher in open market samples than both farms.