

ABSTRACT
ORGANOCHLORINE PESTICIDE RESIDUES IN THE PASTURE
ENVIRONMENT, MEAT AND MILK OF PHILIPPINE BUFFALOES
(*BUBALUS BUBALIS*) FROM ANGAT, BULACAN

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The levels of OCP residues in environmental samples (soil, sediments, water and forage) as well as in meat and milk of Philippine Buffaloes from Angat and CLSU were determined. Barangays Laog and Banaban from Angat were chosen because of their history of pesticide use, which an earlier study confirmed. CLSU-PCC was chosen as the pseudocontrol area because although pesticide use was stopped more than a decade ago, contamination of the area cannot be ruled out. Samples were collected from August 2002 to October 2003 and were taken to the Research and Analytical Services Laboratory of the Natural Science Research Institute (RASL-NSRI), University of the Philippines, for analysis. The pesticide residues were extracted using solvent extraction and analyzed using GC-MS. Analysis of water samples revealed OCP residue levels below MDL indicating low levels of contamination. However, almost all of the studied OCPs were detected in soil samples from Banaban and Laog with Banaban having the highest amount of contamination, 39.89 µg/kg. It is followed by Laog (37.97 µg/kg) and CLSU (6.48 µg/kg). It is possible that the longer use of OCP in Laog and Banaban than in CLSU resulted to higher level of contamination in soil from these areas. The contaminants detected in soil samples were also the same contaminants detected in sediment samples. Laog contains the highest amount of contamination (104.20 µg/kg) followed by Banaban and CLSU (51.54 µg/kg and 1.72 µg/kg, respectively). The higher amount of contamination in Laog sediments may be due to the more intensive use of irrigation in Laog than in Banaban and CLSU. Analysis of OCP residues in forage samples revealed that endrin ketone was the predominant contaminant being present in all forage samples in high amounts. CLSU feed concentrate was also found to contain higher residue levels than grasses and legumes taken from the three areas. In meat, almost all of the studied OCP were present with the cyclodienes, heptachlor, dieldrin and endrin aldehyde as the predominant contaminants. But although many residues are found in the environment and meat of carabaos, only a few residues were present in milk samples. This may be because body burdens were not high enough to be incorporated in the milk. Comparison with the Codex EMRLs for meat and milk revealed that all of the detected residues were below their respective EMRLs suggesting that it is relatively safe to consume these animal products.