Cadmium in Feeds and Tissues of Female Mallard Ducks in Selected Farms of Victoria and Candaba

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Abstract

This study was undertaken to determine the cadmium (Cd) in feeds and tissues and to document the physiologic condition at peri-pubertal (4-8 months), mid (10-14 months) and late laying (≥18 months) stages of ducks from selected farms in Victoria (V) and Candaba (C), Philippines. The commercial and conventional feeds (i.e. snails), liver, ovary muscle and fat samples of ducks were assayed for Cd using AAS-FLAME. The body condition score (BCS), hepatosomatic, ovary-somatic and oviductosomatic indices were measured. Plasma vitellogenin was established and assayed using ELISA kit, using bird vitellogenin antibody. Results showed that Cd was detected in the liver (0.68 ppm) and ovary (0.07ppm), but negligible in muscle and fats tissues. The mean Cd in commercial feeds was 0.29 ppm (51.7%) and 0.4 ppm (100%) in Victoria and Candaba, respectively. Morphological abnormalities in the liver (V=49%, C=35.9%) and ovary (V=13.6%, C=15.6%) of female ducks were comparable in both locations. This study confirmed the presence of Cd in feeds and tissues of ducks in both sites. Interestingly, in Candaba where Cd in feeds and organs was higher than in Victoria, the plasma vitellogenin was lower (P<0.05), which can be related to possible negative effect of Cd on egg production.

Keywords: *cadmium, feeds, liver, ovary, mallard duck, vitellogenin*

Introduction

Duck production is one of the most profitable poultry industries in the Philippines mainly because of the increasing demand for duck eggs (fresh, *balut*, *penoy*, salted eggs, and century eggs). Although it ranks only second to chicken in terms of egg and meat production, its crucial importance in the Philippine poultry industry lies in its provision of employment and income-generating opportunities for