

RESIDUES OF THE MYCOTOXIN CYCLOPIAZONIC ACID IN EGGS AND TISSUES OF LAYING HENS

S. SUKSUPATH, J.W. DORNER*, R.J. COLE* and W.L. BRYDEN

Cyclopiazonic acid (CPA) residues were found in the lungs, heart, kidneys, liver and skeletal muscle of rats given a single intraperitoneal dose [^{14}C]CPA (Norred et al. 1985). CPA has also been found in skeletal muscle of broiler chickens within 3 h after oral dosing but it was eliminated rapidly over the next 24 to 48 h (Norred et al. 1987). We have previously shown the deposition of CPA in hen eggs (Dorner et al. 1990) and we now report the deposition in and clearance of CPA from tissues of the laying hen.

Hens were dosed orally daily with CPA in gelatine capsule at 1.25 or 2.50 mg/kg body weight for seven days. Eggs were collected and the egg white separated at day 1, 3 and 7 of dosing and days 2, 3, 5 and 7 after the cessation of dosing. Excreta was collected on the same days as eggs. Three hens of each group were killed at day 1, 3 and 7 of the dosing period and another three were killed seven days following withdrawal of toxin. Liver, kidney, proventriculus and brain were collected. Egg whites were analysed for CPA as described by Dorner et al. (1990) and the method was slightly modified for tissue and excreta analysis.

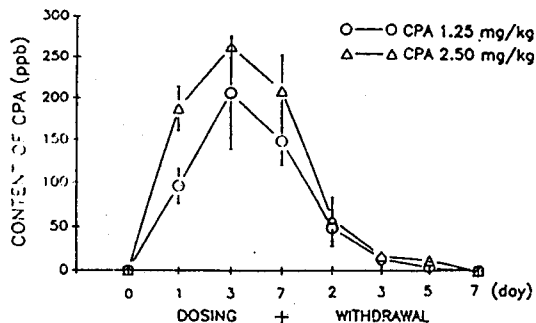


Fig.1 Distribution of CPA in egg whites.

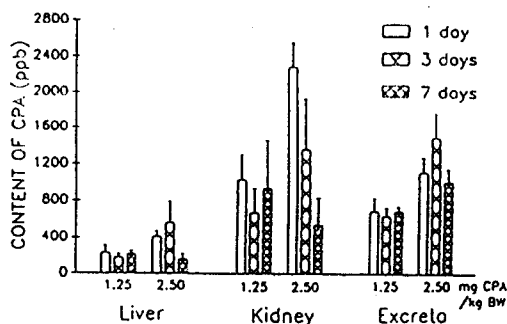


Fig.2 Distribution of CPA in tissues and excreta.

The results of this study show that CPA in egg white was higher in hens given the highest dosage (CPA 2.50 mg/kg) and it reached a maximum concentration three days after dosing commenced irrespective of dosage level and was not detectable seven days after withdrawal of the toxin (Fig.1). The pattern of accumulation and elimination of CPA in excreta was similar to that in eggs. The highest concentration of CPA was found in kidneys with lower amounts in breast muscle, liver, proventriculus and brain, respectively. CPA was not detected in tissues seven days after cessation of dosing.

The results indicate that CPA is deposited throughout the body but is eliminated from dosed hens rapidly.

DORNER, J.W., COLE, R.J., TAYLOR, D.J., SUKSUPATH, S., McDOWELL, G.H. and BRYDEN, W.L. (1990). *Proc. 104th AOAC Meeting*, p. 229.

NORRED, W.P., MORRISSEY, R.E., RILEY, R.Y., COLE, R.J., and DORNER, J.W. (1985). *Food Chem. Toxicol.* 23: 1069.

NORRED, W.P., PORTER, J.K., DORNER, J.W., and COLE, R.J. (1987). *J. Agric. Food Chem.* 36: 113.