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PHARMACOKINETICS AND TISSUE DISTRIBUTION  
OF  
GENTAMICIN IN CHICKEN

BY

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จาก

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## SUMMARY

With 5 mg/kg dose, gentamicin was given intramuscularly to groups of chickens whom received the drug either single or two injections. The drug levels in the serum and tissue extracts were measured at intervals of 1.5, 3, 6, 12, 24 and 48 hour after the last injection. It was found that the absorption of gentamicin was extremely rapid. The peak serum level could be reached in less than 1.5 hour after injection since the highest levels (of the whole sampling period) determined at that time was 9 microgram/ml and succeedingly declined in the first phase of 6 hours with a serum half-life of approximately 2 hours. The prolonged terminal half-life of the drug in the blood lasted for a few days and the drug level determined at the 48th-hour was 0.08 microgram/ml. A two-compartment model was used to describe the decline in serum concentrations and to calculate the pharmacokinetic parameters. Maximum tissue concentrations were 54.8 microgram/g (in the kidney), 10.5 microgram/g (liver) and 0.25 microgram/g (muscle) of which were reached at around 1.5 to 3 hour after the last injection. At 48 hour after single injection gentamicin levels in the blood (0.08 microgram/ml), muscle (0.08 microgram/g), liver (0.04 microgram/g) and kidney (29.38 microgram/g) were below the permissible level set by the U.S.-FDA, except that of the kidney. We had followed the kidney gentamicin levels up to 7 days where its tissue concentration was still as high as 1 microgram/g tissue. It thus concludes from this finding that gentamicin is essentially eliminated from from all edible of the chick after 48 hour of gentamicin treatment. The only tissue that still holds significant amount of gentamicin beyond the permissible level set by the FDA is the kidney.