

Respiratory macrophage activity and pulmonary morphology following exposure to benzo(a)pyrene in broilers

ABSTRACT

The effect of benzo(a)pyrene (BaP) on the macrophage defense system and lung morphology in broilers was evaluated. One day age chicks were divided into 4 groups of 40. Control chicks were given tricapyrin alone intratracheally (IT), while treated groups were given BaP (viz, at 1.5 micro g, 150 micro g or 15 mg/kg bodyweight) for 5 consecutive days IT. Ten birds per group were sacrificed at days 7, 14, 21 and 35. Respiratory lavage was performed immediately to procure avian respiratory macrophages (ARM). A significant decrease in the mean values of the given lavage volume, phagocytosis and intracellular killing activities along with an increase in ARM counts was observed especially in the group receiving 15 mg BaP, suggesting a possible immunopulmonary toxic effect of inhaled BaP.

Keyword: benzo(a)pyrene, intra-tracheal, macrophage, toxicity, broiler