Selected Abstracts From the Literature


This study was carried out to investigate the effects of exposure of growing broiler chickens of commercial origin to used poultry litter on intestinal and systemic immune responses. The litter types evaluated were fresh wood shavings or used litter obtained from commercial poultry farms with or without a history of gangrenous dermatitis (GD). Immune parameters measured were serum nitric oxide levels, serum antibody titers against Eimeria or Clostridium perfringens, mitogen-induced spleen cell proliferation, and intestinal intraepithelial lymphocyte or splenic lymphocyte subpopulations. At 43 days’ posthatch, birds raised on used litter from a GD farm had higher serum nitric oxide levels and greater Eimeria or C perfringens antibody levels compared with chickens raised on fresh litter or used, non-GD litter. Birds raised on non-GD and GD-used litter had greater spleen cell mitogenic responses compared with chickens raised on fresh litter. Finally, spleen and intestinal lymphocyte subpopulations were increased or decreased, depending on the litter type and the surface marker analyzed. Although it is likely that the presence of Eimeria oocysts and endemic viruses varies qualitatively and quantitatively between flocks and, by extension, varies between different used litter types, we believe that these data provide evidence that exposure of growing chicks to used poultry litter stimulates humoral and cell-mediated immune responses, presumably due to contact with contaminating enteric pathogens.


Viral cutaneous lesions are frequent in some bird populations, although we are generally ignorant of the causal agent. In some instances, they represent a threat to livestock and wildlife health. We present here a multiplex polymerase chain reaction, which detects and distinguishes infection by 2 such agents, avipoxviruses and papillomaviruses, in avian hosts. We assayed biopsies and superficial skin swabs from field and preserved museum skin specimens. Ninety-three percent of samples from symptomatic specimens tested positive for the presence of avipox (n = 23) or papillomavirus (n = 5). Sixteen and 5 sequences, corresponding to the P4b and L1 genes, were obtained from avipox and papillomavirus, respectively. One museum specimen, of Fringilla coelebs (chaffinch), was apparently infected with both viruses. Although papillomavirus sequences proved identical to previously published sequences, 4 novel avipox sequences were generated and used to build a neighbor-joining phylogenetic tree. Our tree recovered a similar topology to that of several recent researchers; however, we also propose here 2 new minor avipox clades (B1b and B3). This multiplex polymerase chain reaction technique shows improved sensitivity compared with other avipox and papillomavirus assays. It is able to detect a wide range of avipox and papillomavirus types (it amplifies all 3 avian-derived papillomavirus genera described thus far and sequences from both major avipox clades), and was even able to detect ancient viral DNA contained in museum specimens of greater than 75 years antiquity for both viruses.


In each of 5 sequential trials, laying hens (56–72 weeks of age) were challenged with Salmonella and Campylobacter, and, 1 week postinoculation, the challenged hens (n = 3) were commingled with nonchallenged hens (n = 12) in conventional wire cages, on all-wire slats, or on all-shavings floor housing systems. After 12 days, challenged and nonchallenged hens were euthanatized for sample collection. Ceca were aseptically collected from all hens, and the spleen, liver/gallbladder (LGB), lower (LRT) and upper (URT) reproductive tracts, and ovarian follicles (mature and immature) were collected from only the challenged hens after commingling. Samples were divided equally and cultured separately for Salmonella and Campylobacter. Differences in the horizontal transmission of the challenge Salmonella to nonchallenged hens housed in cages (12%), on slats (15%), and on shavings (14%) were not significantly different (P > .05) from the challenged pen-mate hens over the 5 trials. However, with the inclusion of residual environmental Salmonella, the recovery of Salmonella from nonchallenged hens housed in cages was lowest, at 15%; intermediate for hens on slats, at 20%; and highest for hens on shavings, at 38%. Among challenged hens housed in cages, Salmonella was recovered from only 27% of the cecum and LRT samples. From challenged hens housed on slats, Salmonella was recovered from 38% of the cecum, 12% of the spleen, 19% of the LGB, 44% of the LRT, and 19% of the URT samples. From challenged hens housed on shavings, Salmonella was