Detection of *Cochlosoma anatis* (Kotlan) in *Musca domestica* L. (Diptera: Muscidae) Collected from Commercial Turkey Farms in Arkansas

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**ABSTRACT**  *Cochlosoma anatis* (Kotlan) is a flagellated protozoan that has been implicated in turkey enteritis. After sequencing and comparing a portion of the *C. anatis* 16S gene, species specific primers were previously developed and used for polymerase chain reaction detection of *C. anatis* DNA from house flies within 6 h after the flies had been collected in the field. In this study, filth flies were collected from six turkey production facilities in Arkansas during and between outbreaks of enteritis to determine the role of flies in the spread of *C. anatis* during 2002, 2003, and 2004 using *C. anatis* specific primers. Over the 3-yr-period we found that 181/1996 (9.1%) of the house flies collected from the farms were *C. anatis*-positive. There was a highly significant fly sex × month of collection interaction ($X^2 = 9.83, \text{df} = 2, P = 0.0073$) indicating that greater percentages of males than females were found to be *C. anatis*-positive in August and October, 2002, and May and July in 2004 ($X^2 = 12.84, \text{df} = 2, P = 0.0016$) during enteritis outbreaks. *Cochlosoma anatis*-positive house flies were collected inside and outside the turkey facilities establishing that they could potentially move the protozoan parasite to or from adjacent poultry facilities on the same farm or to or from other turkey farms in the area.

**KEY WORDS**  Enteritis, *Cochlosoma anatis*, PCR, molecular diagnostics, filth fly

Many microorganisms are present in the digestive systems of turkeys including pathogens that gain entrance into the poultry house environment. Enteritis generally occurs in turkey poults at 1–3 wk of age causing clinical signs of the intestinal infection that includes diarrhea, shrill chirping, and litter eating that results in decreased feed efficiency and weight gain, uneven flock growth, and excessive water consumption (Long Lin 1997). Generally, the disease causes high morbidity, but low mortality. There are many causes of turkey enteritis, and variable combinations of pathogens appear to initiate the disease.

The flagellated protozoan, *Cochlosoma anatis* (Kotlan) is a parasite of birds that was first described from the intestines of a duckling diagnosed with coccidiosis by Kotlan (1923). In 1945, an enteritis outbreak occurred in Scotland affecting 2–10 wk-old turkey poults that resulted in high mortality. *Cochlosoma anatis* was found in large quantities and was the only pathogen diagnosed from the intestinal tracts of the poults during the outbreak (Campbell 1945).