

## Diversity of Gastrointestinal Parasites in Free-Living Birds Nesting in Public Areas of Kandy, Sri Lanka

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Free-living birds are essential for ecological stability. They serve as scavengers, pollinators, seed dispersers, and regulators of food chains, but also as roaming reservoirs of parasites, impacting birds and human health. The increase in free-ranging birds, domestic waste and climate change, raises the risk of parasite spillover. Despite this ecological relevance, parasitological studies on free-living birds, particularly in urban public areas in Sri Lanka are limited. This study aims to investigate the diversity of gastrointestinal parasites in free-living birds in Kandy and assess the associated public health risks. A total of 12 pooled fresh faecal samples were collected from 7 urban locations including market (n=2), bus stops (n=3), water bodies (n=4), and open public seating areas (n=3) using sterile polyethylene sheets positioned beneath bird nests. The sampling sites were selected based on high bird activity and potential public exposure. The samples were subjected to faecal salt-flotation and McMaster techniques to identify and quantify parasitological structures of nematodes, cestodes, and protozoa. The coverslip wash method with modified Ziehl-Neelsen staining was used to detect *Cryptosporidium* and *Giardia*, while sedimentation was performed to visualise trematode eggs. Faecal samples represented birds such as crows, pigeons, house sparrows and mynas. Diverse species of parasitic eggs were detected including, nematodes; *Trichuris* (6/12) and *Capillaria* (7/12) being the most frequent, alongside with *Ascaridia* (2/12) and *Strongyles* (2/12). *Hymenolepis* eggs (3/12) were the only cestode detected, with no trematode eggs. Eggs per gram in each sample ranged from 0 to 125 (mean  $\pm$  SD: 95.0  $\pm$  24.49). Protozoan oocysts, primarily *Eimeria* spp., were identified in 11 samples where oocysts per gram in a sample varied between 0 to 22,000 (mean  $\pm$  SD: 4,560.42  $\pm$  3,526.47). No samples tested positive for *Cryptosporidium* or *Giardia*. The highest parasite diversity was observed at Central Market. Parasitism is a key part of wildlife ecosystems. This study addresses a knowledge gap in Sri Lanka. Lack of bird species-specific parasite data is a limitation. Although no zoonotic parasites were detected, continuous surveillance is recommended, as urbanisation, pollution, and unnatural feeding habits may enable parasites to thrive on new hosts, including humans.

**Keywords:** Birds, free-living, parasites, urban, zoonoses