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Isolation and Identification of *Eimeria* spp. From Domestic Pigeons (*Columba livia domestica*) in Basrah, Iraq

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ABSTRACT

Coccidiosis is a widespread disease among pigeons worldwide, resulting in significant economic losses due to mortality, morbidity, and reduced feed efficiency. The present study aimed to isolate a field strain of *Eimeria* spp. in domestic pigeons (*Columba livia domestica*) in Basra, Iraq. To ensure precise species identification, light microscopy techniques were combined with the advanced molecular method of polymerase chain reaction (PCR). Sixty fresh fecal samples were collected from pigeon lofts, ensuring minimal environmental disturbance and contamination. The flotation method was employed to analyze fecal samples. The present results indicated that 36 out of 60 samples contained coccidian oocysts, which represented an overall prevalence of 60%. The PCR technique was employed to amplify the *18S rRNA* genes, which were subsequently utilized for sample detection. Six representative sequences were selected, registered, and deposited in the NCBI database (PV459631.1, PV459632.1, PV459633.1, PV459634.1, PV459635.1, and PV459636.1). The present findings were validated through molecular analysis, and six representative gene sequences were submitted to the National Centre for Biotechnology Information (NCBI) database. The current study revealed a high prevalence of coccidiosis, affecting 60% of domestic pigeons in Basra, highlighting its impact on their health. Moreover, this is the first report of *Eimeria chalcoptereae* in pigeons from Basra, Iraq.

Keywords: *Eimeria chalcoptereae*, Molecular technique, Phylogeny, Pigeon

INTRODUCTION

Coccidiosis is a prevalent disease among pigeons globally and results in considerable economic losses due to mortality, illness, and diminished feed efficiency (Santos et al., 2020; Aboelhadid et al., 2021). The performance of poultry is adversely affected by this condition as it induces acute disease and impairs nutritional utilization (Al-Agouri et al., 2021). Coccidiosis is a significant veterinary disease with a notable economic impact on the pigeon industry (He et al., 2024).

The signs of coccidiosis include watery diarrhoea accompanied by mucus (Mohammed et al., 2017). Watery diarrhea with mucus is a common sign of mucoid or bloody diarrhea, often associated with clinical features such as dysentery, enteritis, emaciation, decreased feed conversion, drooping wings, poor growth, and even death. This condition serves as one of the early diagnostic

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