

# The global epidemiology of Microsporidia infection in birds: A systematic review and meta-analysis

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## Abstract

*This study aimed to assess the global status and genetic diversity of Microsporidia infection in different birds. An online search was conducted in international databases from 1 January 1990 to 30 June 2022. A total of 34 articles (including 37 datasets) were included for the final meta-analysis. The pooled global prevalence of Microsporidia infection in birds was 14.6% (95% CI: 11.6-18.1). The highest prevalence of Microsporidia was found in wild waterfowl which was 54.5% (28.1-78.6). In terms of detection methods, the pooled prevalence was estimated to be 21.2% (95% CI: 12.1-34.4) and 13.4% (95% CI: 10.3-17.3) for using microscopic and molecular detection methods, respectively. Enterocytozoon bienewisi was the most common pathogen (24/31; 77.42% of the studies) according to PCR-based methods, and genotype D was the highest reported genotype (nine studies). In conclusion, designing strategies for the control and prevention of Microsporidia infection in birds should be recommended.*

**Keywords:** *Enterocytozoon bienewisi; Microsporidia; birds; meta-analysis; prevalence; systematic review.*