

Global prevalence and genotype distribution of *Microsporidia* spp. in various consumables: a systematic review and meta-analysis

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Abstract

Water and food sources play a major role in the distribution and transfer of microsporidia infection to animals and humans. So, this systematic review and meta-analysis aimed to assess the status and genetic diversity of microsporidia infection in water, vegetables, fruits, milk, cheese, and meat. The standard protocol of Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines was followed. Scopus, PubMed, Web of Science, and Google Scholar were searched from 1 January 2000 and 1 February 2023. The point estimates and 95% confidence intervals (CIs) were calculated using a random-effects model. Of the 1,308 retrieved studies, 35 articles were included in the final meta-analysis. The pooled prevalence of microsporidia infection in mixed water, mixed fruits, mixed vegetables, and milk was 43.3% (95% CI, 33–54.2%; I^2 , 94.86%), 35.8% (95% CI, 5.3–84.8%; I^2 , 0), 12% (95% CI, 4.9–26.6%; I^2 , 96.43%), and 5.8% (95% CI, 2.7–12%; I^2 , 83.72%), respectively. Considering the genotypes, microsporidia with genotype D in water sources and genotype CD6 in vegetables/fruits were the highest reported genotypes. Given the relatively high prevalence of microsporidiosis (especially in water sources), designing strategies for control, and prevention of microsporidia infection in these sources should be recommended.

Keywords: *fruits, meta-analysis, microsporidia, milk, vegetables, water*