عنوان مقاله:

Prevalence of Mycobacterium avium subsp. paratuberculosisin subclinically infected dairy cattle in Mashhad by Ziehl-Neelsenstaining, culture, and PCR

محل انتشار:

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خلاصه مقاله:

Background and Aim : Mycobacterium avium subsp. paratuberculosis (MAP) is the cause ofJohne's disease in domestic and wild ruminants. Clinically, infected cattle show signs ofemaciation, diarrhea, and finally death, but subclinically infected that do not have clinicalsymptoms can alternately shed MAP through feces and milk and infect other herd animals andincrease the risk of infection. The main goal of this study was to identify the prevalence of thisdisease in the dairy herd by performing Ziehl-Neelsen staining, the culture of feces samples, andmolecular testing.Methods : For this purpose, ۳۴۸ samples were collected from ۱۵ dairy farms randomly andsubjected to these tests. ZN staining of feces samples and PCR nucleotide sequence related tospecific gene fragments (IS۹۰۰, F۵۷) MAP was performed. Also, after decontamination with asolution (۰.۷۵% HPC), all the samples were cultured on Herrold's egg yolk agar special culturemedium.Results : PCR test of feces samples, ۱۱۶ samples (prevalence ۳۳.۳%), ZN staining ۲۳ samples(۶.۶% prevalence), and culture of feces samples only ۱۵ samples (prevalence ۴.۳%) were infectedwith MAP. Results were analyzed to determine associations and levels of agreement between pairsof tests. The comparison of the results of the tests shows a poor agreement (kappa statistic: ۰.۱۲)between the results of PCR and ZN staining and the highest kappa coefficients (kappa statistic:۰.۸۹) between the PCR tests and feces culture.Conclusion : This study highlights the advantages of PCR for the detection of MAP insubclinically infected cattle, in comparison with ZN staining and fecal culture. Identification ofthese shedding animals is extremely important for the prevention of the spread of MAP infectionin an animal herd. Due to the relatively high sensitivity and specificity oPCR, it can be applied totest for MAP at the herd or individual level, regardless of animal age or production stage. PCRwill allow early detection and control of MAP in any population at risk.

کلمات کلیدی:

Johne's disease, Mycobacterium avium subsp. paratuberculosis, Ziehl-Neelsen, Iran

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