

## Molecular evaluation of IDEXX paratuberculosis screening ELISA as a rapid tool for detection of Johne's disease among suspected small ruminants

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The present study aimed to utilize molecular tools to evaluate the reliability of IDEXX paratuberculosis Screening ELISA versus traditional microscopic examination of acid fast-stained-fecal smear for rapid detection of Johne's disease among clinically suspected small ruminants. For this purpose, three different genetic targets, including 16S r-DNA, IS900 and IGS, were used for molecular diagnosis as golden standard for the evaluation study. Out of investigated 2660 animals, 41 cases were selected as being suspected of JD infection based on the associated clinical symptoms. Fecal and blood samples were collected from all suspected animals. Fecal samples were subjected to both conventional microscopic examination and molecular examination. Blood samples were used for serum separation and conduction of immunologic assay using IDEXX paratuberculosis screening ELISA. The results showed that out of the 41 suspected cases, 14(34.1%) and 15(36.6%) cases were positive for JD using microscopic examination and ELISA, respectively. On the other hand molecular evaluation of JD infection among suspected cases revealed an initial infection rate of 43.9% based on the amplification of both bacterial 16SrDNA and *Mycobacterium* genus-specific IGS targets. However, further investigation of suspected samples by detection of MAP-specific IS900 and sequence analysis of the *Mycobacterium* species-specific IGS targets confirmed MAP infection among only 34.1% of the suspected cases. Using molecular results as a standard, higher sensitivity (85.7% vs. 50%), specificity (88.9% vs. 70.4%), PPV (80% vs. 46.7%), NPV (92.3% vs. 73.1%) and AI (87.8% vs. 63.4%) were recorded for ELISA as compared to microscopic detection of AF bacilli in fecal smear, respectively. In conclusion the study revealed the feasibility of the IDEXX paratuberculosis screening ELISA as a reliable tool for rapid detection of Johne's disease among suspected cases of small ruminants.

### Biography

Ghada A Abou El-Ella has completed her PhD from Creighton University, Omaha, Nebraska, USA in 2003. She worked as Assistant Professor of Clinical Laboratory Diagnosis at School of Veterinary Medicine, Assiut University, Egypt. Currently, she is an Associate Professor of Laboratory Medicine at Umm Al-Qura University, Saudi Arabia. She is the Director of Tissue Culture Research Laboratory at the Central Laboratories of College of Applied Medical Sciences, Umm Al-Qura University. She has published more than 15 papers in reputed journals.

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