

## **Occurrence, morphometric, and molecular investigation of cattle and buffalo liver adult fluke in Peninsular Malaysia main abattoirs**

### **ABSTRACT**

Fascioliasis is a parasitic disease of human and animal caused by *Fasciola gigantica* (*F. gigantica*) and *Fasciola hepatica* (*F. hepatica*). More than 700 million of grazing animals and over 180 million human population are at the risk of fascioliasis. This study was conducted in Banting, Ipoh, Shah Alam, and Taiping abattoirs within Peninsular Malaysia to determine the occurrence and identify the species of liver flukes, causing liver condemnation in cattle and buffaloes. Within a study period from January to December 2018, a total of 25 condemned bovine livers were collected from Banting, Ipoh, Shah Alam, and Taiping abattoirs and analyzed. Taiping abattoir had the highest occurrence of fascioliasis [14/1014 (1.38%)], and Shah Alam abattoir had the least occurrence [1/3377 (0.03%)]. From all the sampled livers, the average number of adult flukes recorded ranged from 1 to 83. A total of 440 adult flukes were studied morphometrically, using parameters such as body length (BL), body width (BW), cone length (CL), cone width (CL), body area (BA), body perimeter (BP), the distance between the ventral sucker and posterior end of body (VS-P), BL/BW ratio, BL/V-SP, and body roundness (BR). Furthermore, molecular analysis was conducted using PCR-RFLP methods to distinguish between *F. gigantica* and *F. hepatica* involving ITS1 primer and *RsaI* restriction enzyme. RFLP pattern with *RsaI* produced a consistent pattern of 360,100 and 60 bp fragments in *F. hepatica*, whereas *F. gigantica* worms had a profile of 360,170, and 60 bp in size. The morphometric and molecular analysis results indicated that cattle and buffaloes slaughtered at Banting, Shah Alam, Taiping, and Ipoh abattoirs were infected with *F. gigantica*.