

The performance of a PCR assay for the detection of *Fasciola hepatica* DNA in fecal samples

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The liver fluke *Fasciola hepatica* is an important human and animal parasite, representing an important economic and health problem throughout the world. There are no characteristic clinical symptoms, therefore a correct diagnosis depends on accurate laboratory tests. Detecting fluke eggs in feces has a low sensitivity, whereas serological techniques do not prove an active infection. The aim of this study was to determine the sensitivity of a PCR assay for the detection of *F. hepatica* DNA in fecal samples of experimentally infected rats, sheep and cattle. In this assay, a 124 base pair, non-coding tandem repeat was the target sequence for amplification. Fecal samples from experimentally infected animals were tested by the PCR method and for comparison, simultaneously by the sedimentation method. The PCR assay was capable of detecting fluke DNA earliest in rat feces, 5 weeks post infection (63,6% of individuals). The sensitivity of the test increased weekly (86.4% in the 6th, 93.2% in the 8th) and reached 100% by the 9th week. In sheep, the amplification was obtained in the 8th week (42% samples), by the 10th week the sensitivity was up to 92%. In cattle, DNA detection was possible from the 10th week (67%) and the sensitivity reached 83% on week 12. In all cases, fecal examinations enabled a positive diagnosis later than the PCR assay. It was concluded that the PCR amplification of fluke DNA in feces offers a higher sensitivity than coproscopy, however the performance of the test in ruminants must be further optimized.