

Differentiation of Four *Eimeria* Species Commonly Seen in Taiwanese Rabbits by RAPD

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ABSTRACT To differentiate four *Eimeria* species from rabbit, namely, *Eimeria piriformis*, *E. magna*, *E. perforans*, and *E. media*, random amplified polymorphic DNA (RAPD) with 11 sets of non-specific primers, designated G2, E111 to E120, was carried out. Modification of DNA extraction from sporulated oocyst using sodium hypochlorite treatment and lysis buffer followed by glass beads homogenization was found to yield a better result. Of the 11 primer sets tested, 3 (E113, E114, and E120) were able to produce unique band patterns for *E. piriformis*, which can be used to differentiate it from *E. magna*, *E. media*, and *E. perforans*. However, primer E111 was able to produce different band patterns for *E. magna*, *E. media*, and *E. perforans* but no band for *E. piriformis*. Thus, using a combination of E111 with either E113 or E120 primers, we can differentiate each of the 4 species from one another. Thus, RAPD has the potential to be used as a molecular method for confirming and differentiating the identity of the *Eimeria* species from rabbit to complement the classical morphometric method. [LI MH, LIAO CT, OU WC, CHEN PL, HUANG CH, CHEN YH, HUANG HI, * OOI HK. Differentiation of Four *Eimeria* Species Commonly Seen in Taiwanese Rabbits by RAPD. Taiwan Vet J 38 (4): 227-232, 2012. * Corresponding author TEL: 886-4-2860013, FAX: 886-4-2862073, E-mail: hkooi@mail.nchu.edu.tw]

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INTRODUCTION

The identification of the *Eimeria* species is based on the morphology of the sporulated oocyst but several of these species cannot be readily identified. For example, it is hard to distinguish *E. perforans* from *E. media* and *E. flavescens* from *E. irresidua* only with the morphology of the oocysts [3]. We have isolated 4 common species of *Eimeria*, namely, *Eimeria media*,

E. perforans, *E. magna*, and *E. piriformis* from the fecal sample of rabbits in Taiwan [8]. In natural infection, several species of the intestinal rabbit *Eimeria* often occurs mixed infection [8, 14]. Thus, there is a need to differentiate the various species in the mixed infection. Since the morphology of the oocysts of some species is quite similar, it is always good to establish a molecular technique whereby the species can be confirmed.