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Genetic characterization of *Toxoplasma gondii* in domestic cats from Southern Thailand

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Toxoplasma gondii is a protozoan parasite infected humans and animals worldwide. Revealed from many studies indicated that causes of *Toxoplasma* infections were mainly due to direct contact with cats or eating foods contaminated with infectious oocysts shedding from cat feces. Each genotype of *Toxoplasma*, which classified into three dominant lineages (type I, II and III), caused different virulence in mice. Genotyping of *T. gondii* strains both in humans and animals has never been reported from Thailand. Therefore, this study aims to determine the genotype of *T. gondii* isolated from domestic cats in Southern Thailand. A total of 334 cat feces were screened for coccidian oocysts by microscopic examination and PCR assays targeted the 529 bp repeat element and internal transcribed spacer-1 (ITS-1) regions were used to identify *T. gondii*. PCR-RFLP of five locus of *T. gondii* was performed to classify the genotypic characteristics. Under light microscopy, 18% (60/334) of coccidian oocysts were found. PCR analysis revealed 0.6% (2/334) and 5.1% (17/334) of cat feces positive by Tox and ITS-1 primers, respectively. The BLAST results of 16 ITS-1 sequences were identified as *T. gondii* (3.6%; 12/344) and *H. hammondi* (1.2%; 4/334). The PCR-RFLP patterns of SAG1, SAG2-new, SAG3, BTUB and GRA6 markers were able to amplify 8/13 (61.5%) of *T. gondii* isolates and resulted in five diverse genotypes: the type I (one isolate), type III (two isolates), type II or type III (one isolate), recombinant genotypes (two isolates) and atypical genotypes (two isolates). The presence of unusual genotypes may lead to new virulent traits associated with more severe forms of human *Toxoplasma* infections. This is the first report of genotypic characteristics of *T. gondii* isolated from naturally infected animals in Thailand. These findings still need more evaluation before conclude whether the oocysts from Thai domestic cat play an importance role in severity of toxoplasmosis.

Biography

Nongyao Sawangjaroen has her expertise in Medical Protozoology. Her researches include several studies on Thai medicinal plant against intestinal protozoa. The seroprevalence and molecular genotyping of *Toxoplasma gondii* in Thailand are also extensively investigated.

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