

Molecular identification of *Ascaris* spp. infecting humans and animals in Caraga Region Philippines based on ribosomal DNA profiles

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Ascaris lumbricoides and *Ascaris suum* are two of the most widespread intestinal helminths affecting the health of humans and pigs respectively worldwide. The two species of *Ascaris* are morphologically indistinguishable when diagnosed through microscopy, but artificial infection studies and molecular epidemiological investigations from other countries indicate that *A. lumbricoides* can infect pigs and vice versa. To date, there is a dearth of similar studies that have been published in the Philippines. Hence, this study aimed to investigate the molecular identities of *Ascaris* spp. from humans and animals, i.e. dogs, cats, pigs, and water buffalo collected from the Philippines.

Stool samples from humans and animals were collected from eight municipalities in Caraga region in a household-based survey. The samples were processed using Kato-Katz technique for the human samples and sedimentation and flotation techniques for the animal samples and were examined through microscopy for the presence of *Ascaris* spp. ova. Samples were then subjected to PCR-linked RFLP (Restriction Fragment Length Polymorphism) analysis of the nuclear ITS1 region which distinguishes *A. lumbricoides* and *A. suum* upon distinctive RFLP profiles. While most of the samples exhibit the characteristic pattern of *Ascaris* species expected for the host, the occurrence of *A. suum* genotype in 19 (2.6 %) human-derived samples and 3 (2.3 %) *A. lumbricoides* genotype in pig-derived samples and 43 (5.0 %) of samples with both *A.lumbricoides/A.suum* patterns indicate possible cross transmission and hybridization events. Furthermore, the detection of *Ascaris* spp. in other animals suggests that these animals may also contribute to environmental contamination and transmission of *Ascaris* spp. to humans. The zoonotic potential of *Ascaris* should not be overlooked and must be considered in planning for more efficient control and treatment programs.

Keywords: *Ascaris* spp.; PCR-RFLP; cross transmission, hybridization; zoonosis