

Molecular identification of *Taenia* species causing bovine cysticercosis in Rio Grande do Sul

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Cysticercosis is a zoonosis caused by Cestoda larval stages of the genus *Taenia*. The intermediate hosts with economic and sanitary importance are bovine and swine, which are commonly infected by *T. saginata* and *T. solium*, respectively. These intermediate hosts become infected with larval form by eggs ingesting from dispersed human feces in the environment. *Taenia* has a cosmopolitan distribution, being even more abundant in countries with large cattle herds, such as Brazil, and especially in regions of livestock production predominance, such as the state of Rio Grande do Sul. After being ingested, the eggs hatch in larvae which form cysts in various internal organs, characterizing the disease. The swine production system in Rio Grande do Sul is mainly done by confinement until animals complete the production cycle, in a few months. This scenery allows an efficient control of *T. solium* regarding to *T. saginata*. On the other hand, most cases of human cysticercosis and taeniasis in Rio Grande do Sul are still due to infections with *T. solium*. In this context, it is assumed that *T. solium* may be a significant part of the infections in cattle. In order to answer this question, we sampled cysticerci in a slaughterhouse. Once collected, samples were stored in absolute ethanol, taken to the laboratory and stored at -20° C until DNA extraction. All cysticerci from a single bovine were considered as a single sample. DNA extraction was performed from single individuals by alcohol precipitation method after extraction by Phenol/Chloroform. To determine *Taenia* species was carried out PCR-RFLP with primers for Cytochrome Oxidase I gene fragment, previously described on the literature, followed by differential cleavage with Restriction Endonuclease *ApoI*. To date, 41 cattle cysticerci was obtained, from 13 cities: Santa Barbara do Sul (6), Panambi (5), Pejuçara (2), Bozano (1), São Borja (3), Santo Augusto (3), Condor (1), Júlio de Castilhos (1), Nova Ramada (12), Saldanha Marinho (1), Ijuí (2), Restinga Seca (2), Palmeira das Missões (2). DNA extraction showed a large amount of degraded DNA, which was already expected because cysticerci sampled were already calcified. However, even for low quality DNA samples, the expected fragment size (444 pb) was obtained by PCR for 14 of 33 samples tested yet. The fact that we can amplify DNA from degraded cysticerci samples allows us to increase the probability of finding *T. solium* in cattle, since this parasite is unusual in this host and it is expected that the host response – by calcification - to be efficient in blocking most infections. From now, the cleavage of amplicons will be performed by *ApoI* to determine the *Taenia* species. Further, we will be able to calculate the *T. solium* infection frequency in cattle livestock to the area sampled in our study. The occurrence of *Taenia solium* in cattle represents a host switch event with relevant and important consequences for policies to control zoonoses.

Keywords: *Taenia*, Host switch, Molecular approach