Sarcocystis thermostable PCR detection kit

June 13 2014, by Darmarajah Nadarajah

Consumption of undercooked cyst-laden meat from cattle, sheep and goats may cause infection in humans. Researchers from Universiti Teknologi MARA have successfully invented a PCR kit which provides a suitable and feasible means of screening, detection and identification with high sensitivity and specificity of the parasite.

Sarcosytis spp are intracellular protozoan parasites acquired upon consumption of undercooked cyst-laden meat from cattle, sheep and goats. Humans and some primates are defective hosts for Sarcosystis hominis and S. suihominis after ingesting raw meat from cattle and pigs, respectively.

Cases of human infection have been documented. Humans carry the intramuscular micro and macrocyst. The actual incidence among humans is yet to be assessed. The asexual stages, including sarcoyst, can provoke a strong inflammatory reaction in the tissues.

Human cases have been reported with acute myositis, diarrhoea and fever. Livestock suffer acute debilitating infections, resulting in abortion and death or chronic infections with failure to grow or thrive. It is indeed regrettable that this disease has not received the attention it deserves and remains a neglected one.

Studies have shown that sarcosytis spp were seen in 56% of hamburgers, 20% of hotdogs and sausages. Definitive diagnosis with identification of sporocysts in faeces requires multiple stool examinations, several days after having eaten the meat.

Sarcocystis sarcocysts in muscle biopsy specimens can be identified by microscopic examination of histological sections stained with haematoxylin and eosin and other stains such as PAS reaction. Basic histological examinations, by no means, can help definitive identification of sarcocystis at spies level and warrants electron microscopy or molecular analysis.

It has also been reported that polymerase chain reaction PCR positive samples were reported negative on histology. PCR provides a feasible means for screening, detection and identification with high sensitivity and specificity of the parasite.

Our PCR kit has been created with thermo stabilised PCR reactions Premixes consists of buffered salt solution with dNTPs, MgCl and Taq polymerase enzyme. The user just adds templates, primers and PCR grade distilled water and amplify based on the given conditions.

Advantages Amplifies multiple genes simultaneously requires no cold chain built-in gel loading dye which facilitates the loading of PCR products directly onto the agaose gel without addition of sample loading buffer, easy to follow steps minimises handling and pipetting useful for field works fast accurate and affordable PCR provides a suitable and feasible means for screening detection and identification with high sensitivity and specificity of the parasite.

Currently there are no commercially available PCR detection kits for sarcocystis. This kit can be of invaluable help for large scale quick screening of meat for sarcocystis. thus its value cannot be overemphasized for not only meat industry but also the ministry concerned with food and meat safety.

Provided by ResearchSEA