View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

東北大学機関リポジトリ
TOUR
Tohoku University Repository

Development of a Highly Sensitive Method for the Detection of Cryptosporidium parvum Virus Type 1 (CSpV1)

著者	SHEHATA Ayman Ahmed, BANDO Hironori, FUKUDA Yasuhiro, KABIR Mohammad Hazzaz Bin, MURAKOSHI Fumi, ITOH Megumi, FUJIKURA Atsushi, OKAWA Hiroaki, ENDO Takuto, GOTO Akira, KACHI Masayuki, NAKAYAMA Toshie, KANO Yuto, OISHI Shoko, OTOMARU Konosuke, KAZAMA Kei, ESSA Mohamed Ibrahim, KATO Kentaro
journal or publication title	Journal of Integrated Field Science
volume	17
page range	39-39
year	2020-03
URL	http://hdl.handle.net/10097/00128805

P-2. Development of a Highly Sensitive Method for the Detection of *Cryptosporidium parvum* Virus Type 1 (CSpV1)

Ayman Ahmed SHEHATA[1,2], Hironori BANDO[1], Yasuhiro FUKUDA[1], Mohammad Hazzaz Bin KABIR[3,4], Fumi MURAKOSHI[5], Megumi ITOH[6], Atsushi FUJIKURA[7], Hiroaki OKAWA[7], Takuto ENDO[8], Akira GOTO[9], Masayuki KACHI[10], Toshie NAKAYAMA[11], Yuto KANO[12], Shoko OISHI[13], Konosuke OTOMARU[13], Kei KAZAMA[14], Mohamed Ibrahim ESSA[2] and Kentaro KATO[1,3]

[1]Graduate School of Agricultural Science, Tohoku University
[2]Department of Animal Medicine, Infectious Diseases, Faculty of Veterinary Medicine, Zagazig University
[3]National Research Center for Protozoan Diseases, Obihiro University of Agriculture and Veterinary Medicine
[4]Department of Microbiology and Parasitology, Sher-e-Bangla Agricultural University
[5]Department of Infectious Diseases, Kyoto Prefectural University of Medicine
[6]Department of Veterinary Medicine, Obihiro University of Agriculture and Veterinary Medicine
[7]Fukuoka Dairy Cattle Artificial Insemination Clinic, Fukuoka Prefecture Dairy Farming Cooperative
[8]Kurume Dairy Cattle Artificial Insemination Clinic, Fukuoka Prefecture Dairy Farming Cooperative
[9]Veterinary Medical Center, Obihiro University of Agriculture and Veterinary Medicine
[10]Dairy Research Department, Gifu Prefectural Livestock Research Institute
[11]Miyazaki Agricultural mutual aid association
[12]Soo Agricultural mutual aid association
[13]Joint Faculty of Veterinary Medicine, Kagoshima University
[14]School of Veterinary Medicine, Azabu University.

Cryptosporidium is one of the most important zoonotic parasites that causes cryptosporidiosis. Although, infection occurs throughout the world in high prevalence rates, none completely effective drugs are available. Therefore, the development of a rapid and accurate diagnostic method and genetic surveillance of *Cryptosporidium* are critically required to predict and prevent the spread of infection. Recently, some studies have been focused on *Cryptosporidium parvum* virus type 1 (CSpV1), the first member within Partitiviridae family to infect protozoan host, as a new tool for detection and genetic surveillance of *Cryptosporidium*. However, these studies followed different molecular detection methods, therefore the relationship between PCR-based CSpV1 detection, the target site of the virus genome, and detection sensitivity remains unclear. In this study, we show that the second half of the coding region of dsRNA2 is effectively detected from various types of clinical samples without the need for oocyst purification by using a nested PCR technique. Importantly, our method showed higher sensitivity in field fecal samples compared with *Cryptosporidium* 18S rRNA-based detection method. Moreover, this targeted short sequence reveals a high level of genetic polymorphism compared with the *Cryptosporidium* GP60 gene. Taken together, these results suggest that our method might be good strategy for *Cryptosporidium* and/or CSpV1 analysis.