

Cytopathic genotype 2 bovine viral diarrhea virus in dromedary camels

(Received: 12.10.2003; Accepted: 05.12.2003)

A.A. Yousif^{*,**}, L.J. Braun^{*}, M.S. Saber^{**}, T. Aboelleil^{***} and C.C.L. Chase^{*}

^{*} Department of Veterinary Science, Animal Disease Research and Diagnostic Laboratory, South Dakota State University, Brookings, SD 57007-1396. Office phone: (605) 688-5171.

FAX: (605) 688-6003. E-Mail: Chris_Chase@sdstate.edu

^{**} Department of Virology, Faculty of Veterinary Medicine, Cairo University, Giza, 12211, Egypt. Office Phone: (202) 5710-309. FAX: (202) 5725-240. E-mail: ausamay@hotmail.com

^{***} Department of Pathology, Faculty of Veterinary Medicine, Cairo University, Giza, 12211, Egypt. Office Phone: (202) 5720-399. FAX: (202) 5725-240.

^{*} Corresponding Author.

ABSTRACT

Pestivirus infections in domesticated ruminant species and pigs are worldwide problems with severe economic impact. A wide range of wild ruminant species can also acquire pestivirus infections. We isolated several pestiviruses from Egyptian dromedary camels (Camelus dromedarius) in 1995. The camels from which these pestiviruses were isolated had signs of reproductive and congenital disease. The camel isolates were shown to experimentally infect cattle and goats. To genetically characterize these isolates, RNA extracts from two cytopathic Egyptian camel isolates, Giza4 and Giza7 were amplified by RT-PCR using a nested set of primers complementary to sequences in the E^{ms} of the pestivirus genome. The nested PCR product was characteristic of a bovine viral diarrhea virus (BVDV) type 2 for isolate Giza7 and of BVDV type 1 for Giza4. Giza7 E^{ms} nucleotide sequences were 82-88 %, 68.7-72 %, 66.5-67.2%, 68 % and 64 % homologous with BVDV-2, BVDV-1, BDV, CSFV and Reindeer-1 viruses, respectively. Giraffe-1 pestivirus sequence homology to Giza7 was 70 %, higher than homology values of BVDV-1 Oregon and BVDV-1 NADL. The predicted amino acid sequence homologies of Giza7 were 84.9-90.2 %, 77.4-81.9 %, 73.6 % and 73.6 % for BVDV-2, BVDV-1, BDV and CSFV, respectively. Giraffe-1 and Reindeer-1 isolates showed 75.1 % and 72.1 %, amino acid homology to Giza7, respectively. This is the first report of a BVDV-2 infection in dromedary camels world-wide.

Key words: Bovine viral, Diarrhea virus, dromedary camels.

INTRODUCTION

Pestiviruses are a group of closely related small RNA viruses belonging to the family Flaviviridae. The family also includes the genera Flavivirus and Hepacivirus (Becher *et al.*, 1999). Pestiviruses have

positive stranded RNA genomes of an average length of 12.3 kb. The genome contains a large open reading frame flanked by 5' and 3' untranslated regions (UTR). The viral polypeptides and the genes encoding them are (from the N to C terminus): N^{pro}, C, E^{ms}, E1, E2, p7, NS2-3 (or NS2, NS3), NS4A, NS4B,