

Communication

# Occurrence of *Clostridium perfringens* in wild mammals in the Amazon biome

Hanna Gabriela da Silva Oliveira <sup>1</sup>, Ananda Iara de Jesus Sousa <sup>1</sup>, Isabela Paduá Zanon <sup>2</sup>, Cinthia Távora de Albuquerque Lopes <sup>1</sup>, Rodrigo Otavio Silveira Silva <sup>2</sup>, Sheyla Farhayldes Souza Domingues <sup>1</sup> and Felipe Masiero Salvareni <sup>1\*</sup>

<sup>1</sup> Instituto de Medicina Veterinária, Universidade Federal do Pará, Castanhal 68740970, PA, Brasil; hnnagabriela@gmail.com (H.G.d.S.O.); anandaiara@hotmail.com (A.I.d.J.S.); cinthia@ufpa.br (C.T.d.A.L.); shfarha@ufpa.br (S.F.S.D.); felipems@ufpa.br (F.M.S.);

<sup>2</sup> Laboratório de Bacterioses e Pesquisa da Escola de Veterinária, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brasil; pasuaisabela@gmail.com (I.P.Z.); rodrigo.otaviosilva@gmail.com (R.O.S.S.);

\* Correspondence: felipems@ufpa.br

## Supplementary Materials



**Figure S1.** The collection procedures were monitored by veterinarian residents to monitor animal welfare, including the physical, mental and behavioural states of each species.



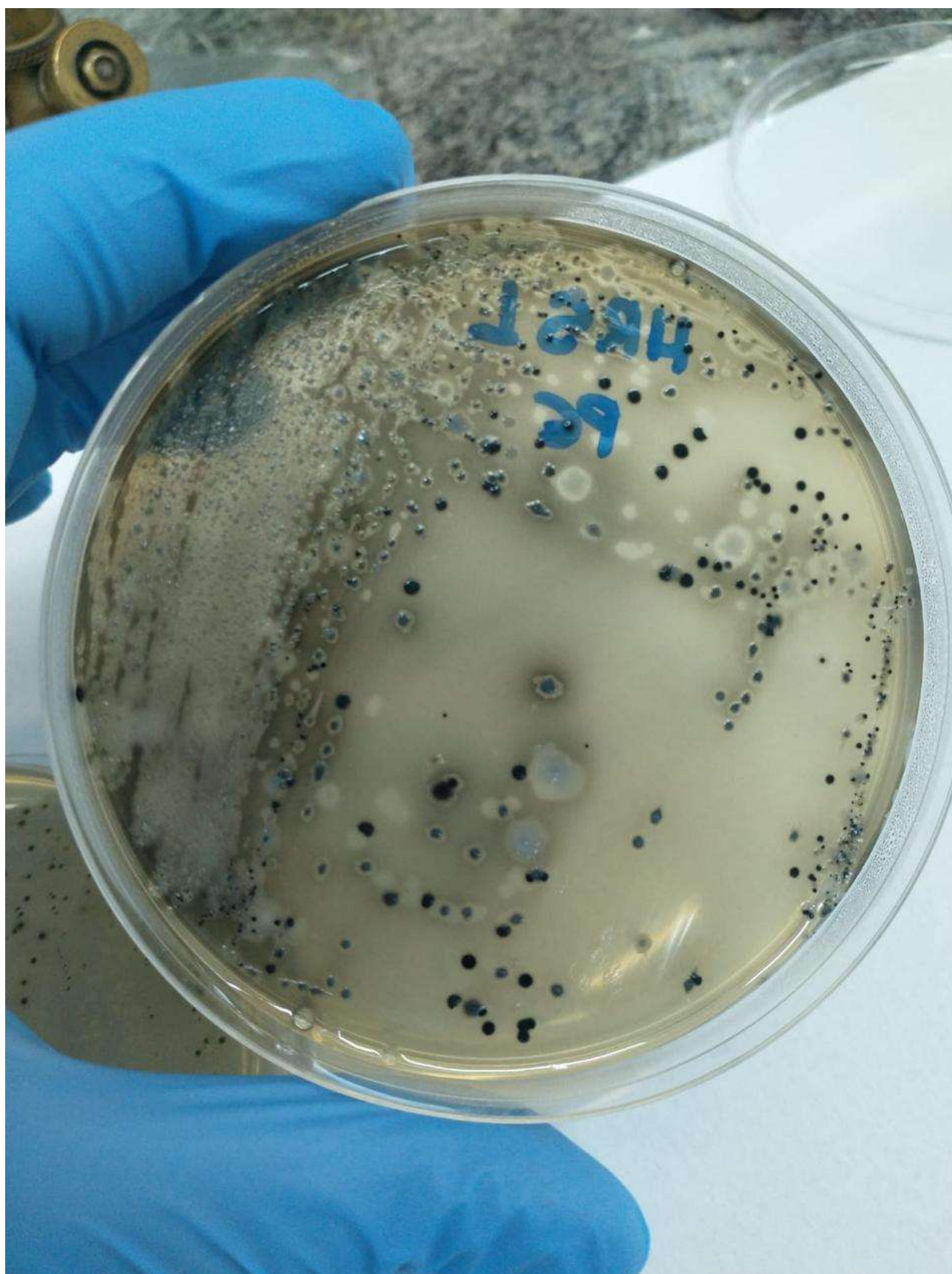


**Figure S2.** Cloacal and anal swabs were collected under the same conditions, and proper physical and chemical protocols for each species were applied to reduce the risk of accidents and stress.

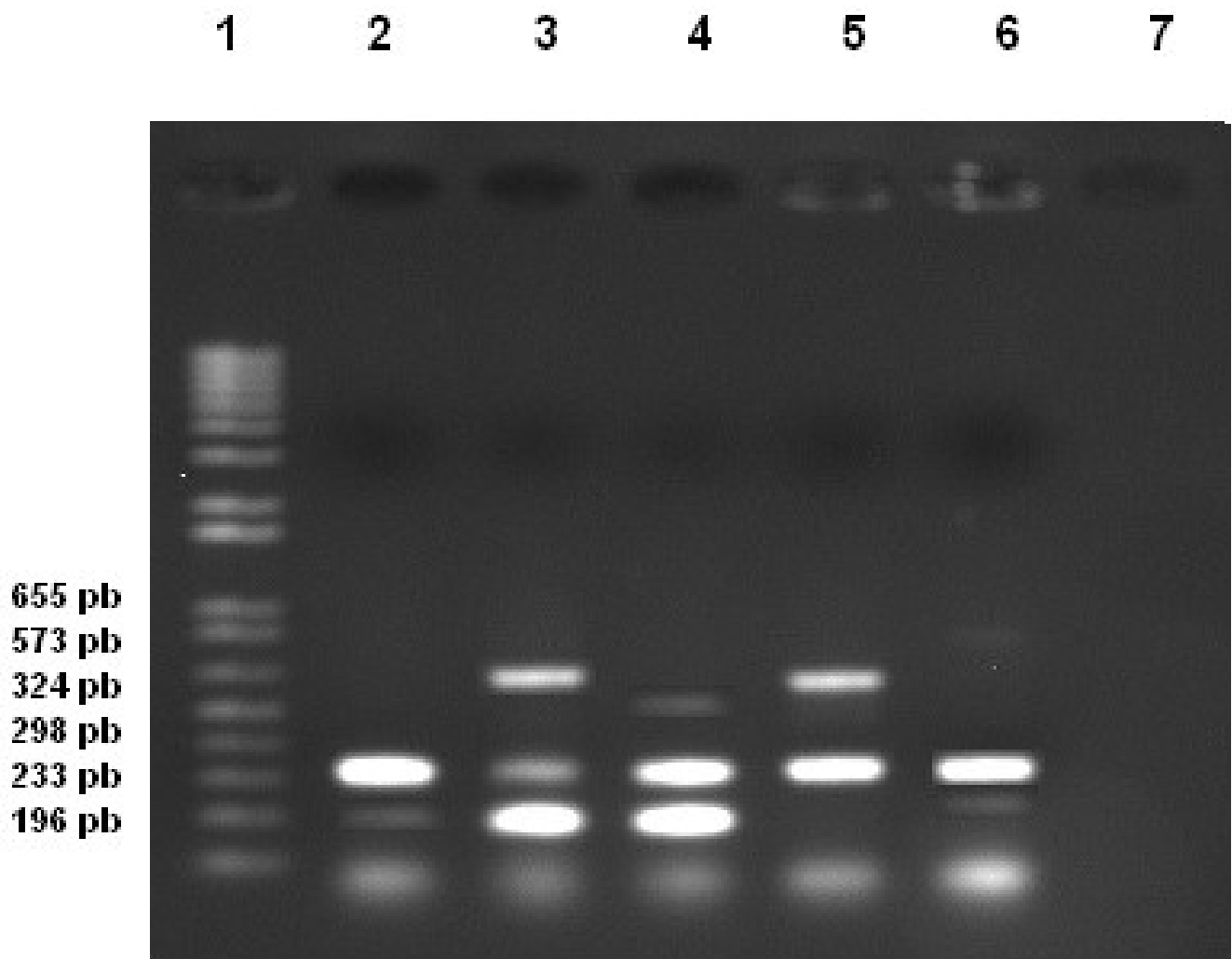




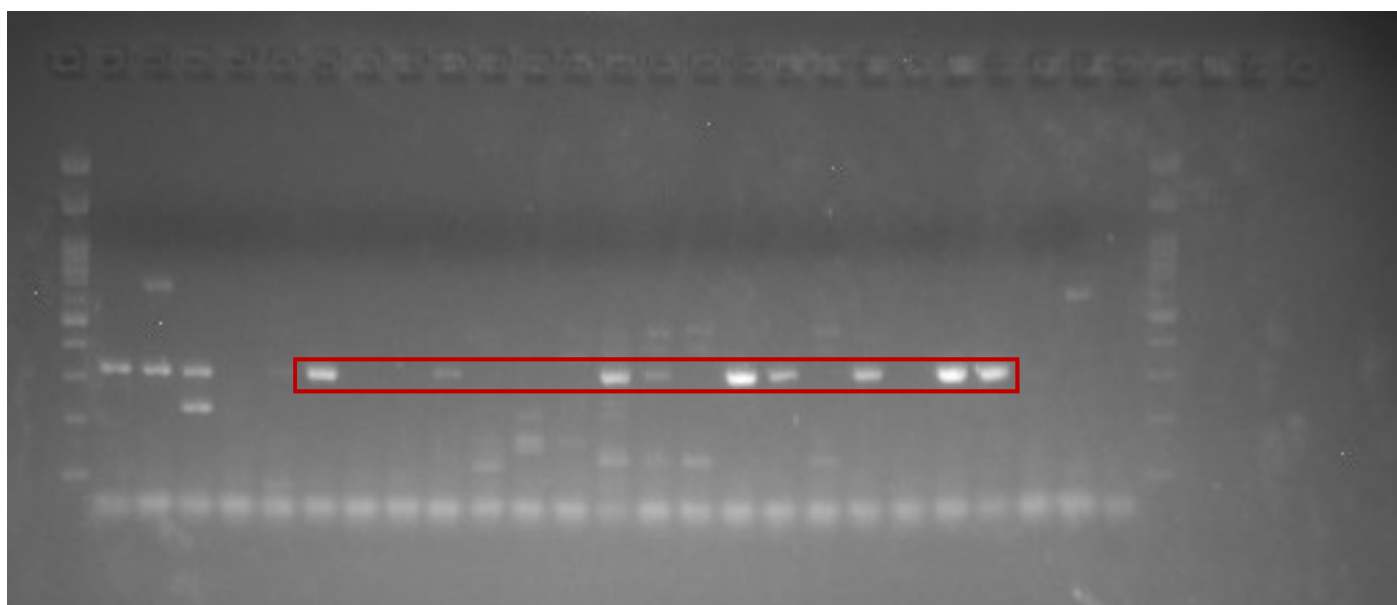
**Figure S3.** The stool samples were placed in microtubes and the swab samples were transferred to a saline solution.



**Figure S4.** Characteristic colonies of *Clostridium perfringens* containing sulfite-reducing microorganisms.



**Figure S5.** 1% agarose gel electrophoresis of the Multiplex PCR of *Clostridium perfringens* types A-E. Channel 1: Molecular size standard (1 kb plus DNA Ladder - Invitrogen); Channel 2- Amplification of the 233 and 324 base pair products of the *cpe* and *cpa* genes (*C. perfringens* A - ATCC 3624); Channel 3- Amplification of the 196 and 324 products of the *cpb*, *cpa* and *etx* genes (*C. perfringens* B - ATCC 3626); Channel 4- Amplification of the 196 and 324 products of the *cpb* and *cpa* genes (*C. perfringens* C - ATCC 3628); Channel 5- Amplification of the 324 and 655 base pair products of the *cpa* and *etx* genes (*C. perfringens* D - ATCC 3629); Channel 6- Amplification of the 298 and 324 base pair products of the *iA* and *cpa* genes (*C. perfringens* E - ATCC 27324); Channel 7 – Negative control.



**Figure S6.** 1% agarose gel electrophoresis of the Multiplex PCR of *Clostridium perfringens* toxinotypes used in the study. Photo taken on the transilluminator equipment inside the exclusive PCR development room. Highlighted positive samples of *Clostridium perfringens* type A with amplification of the 324pb of the *cpa* gene.