Supplementary Table S1.*Oligonucleotides, target genes and cycling conditions used cPCR assays that were performed in biological samples from wild mammals, domestic dogs and their respective ectoparasites, sampled in Pantanal wetland, Brazil.*

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| --- | --- | --- | --- | --- |
| Primers and probes sequences (5’-3’) | Gene | Thermal conditions | PCR Product Size | References |
| GAPDH-F (CCTTCATTGACCTCAACTACAT)  | GAPDH/ Mammals | 95°C for 5 min; 35 cycles of 95°C for 15 sec, 50°C for 30 sec and 72°C for 30 sec; and final extension of 72°C for 5min. | 400pb | [21] |
| GAPDH-R (CCAAAGTTGTCATGGATGACC) |
| 16S+1(CTGCTCAATGATTTTTTAAATTGCTGTGG) | 16SrRNA /Ticks | 10 cycles of 92°C for 1 min, 48°C for 1min and 72°C for 1min, followed by 32 cycles of 92°C for 1 min, 54°C for 35 sec and 72°C for 1,35 min, and final extension of 72°C for 7min. | 460pb | [22] |
| 16S-1(CCGGTCTGAACTCAGATCAAGT) |
| HC02198 (TAAACTTCAGGGTGACCAAAAAATCA) | COX1/ Fleas | 95°C for 1min, 35 cycles of 95°C for 15 sec, 55°C for 15 sec and 72°C for 10 sec, and final extension of 72°C for 5min. | 710pb | [23] |
| LCO1490 (GGTCAACAAATCATAAAGATATTGG) |
| ECC (GAACGAACGCTGGCGGCAAGC) | *16SrRNA /Ehrlichia* spp. | 1ºRound: 94°C for 5 min, 40 cycles of 94°C for 1 min, 60°C for 1 min and 72°C for 1min; and final extension of 72°C for 5min | 358pb | [24] |
| ECB (CGTATTACCGCGGCTGCTGGCA) |
| ECAN-5 (CAATTATTTATAGCCTCTGGCTATAGGA) | 2ºRound: 94°C for 5 min, 40 cycles of 94°C for 1 min, 55°C for 1 min and 72°C for 1min; and final extension of 72°C for 5min |
| HE3 (TATAGGTACCGTCATTATCTTCCCTAT) |
| gE3a (CACATGCAAGTCGAACGGATTATTC) | *16SrRNA /Anaplasma spp.* | 94°C for 5 min, 40 cycles of 94°C for 30sec, 55°C for 30sec and 72°C for 1min; and final extension of 72°C for 5min (1º and 2º Rounds)  | 546pb | [25] |
| gE10R (TTCCGTTAAGAAGGATCTAATCTCC) |
| gE2r (GGCAGTATTAAAAGCAGCTCCAGG) |
| gE9f (AACGGATTATTCTTTATAGCTTGCT) |
| HS1a (AITGGGCTGGTAITGAAAT) | *groESL/ Anaplasma spp.* and *Ehrlichia* spp. | 1ºRound: 3 cycles of 94°C for 1 min, 48°C for 2min and 72°C for 1,5min followed by 37 cycles of 94°C for 1 min, 48°C for 2 min and 72°C for 1,5min; and final extension of 72°C for 5min, 2ºRound: The annealing temperature was elevated to 55°C | 600pb | [29-30] |
| EHR-CS778R (CCICCIGGIACIAIACCTTC) |
| HS43 (AT(A/T)GC(A/T)AA(G/A)GAAGCATAGTC) |
| HSVR (CTCAACAGCAGCTCTAGTAGC) |
| conP28-F1 (AT(C/T)AGT(G/C)AAA(A/G)TA(T/C)(A/G)T(G/A)CCAA) | *omp-1/ Ehrlichia* spp. | 94°C for 3 min, 35 cycles of 94°C for 1min, 50°C for 1min and 72°C for 2min; and final extension of 72°C for 5min (1º and 2ºRounds)  | 300pb | [31] |
| conP28-R1 (TTA(G/A)AA(A/G)G(C/T)AAA(C/T)CT(T/G)CCTCC) |
| conP28-F2 (CAATGG(A/G)(T/A)GG(T/C)CC(A/C)AGA(AG)TAG) |
| conP28-R2 (TTCC(T/C)TG(A/G)TA(A/G)G(A/C)AA(T/G)TTTAGG) |
| dsb-330 (GATGATGTCTGAAGATATGAAACAAAT) | *dsb/ Ehrlichia canis* | 95°C for 2min, 50 cycles of 95°C for 15 sec, 58°C for 15 sec and 72°C for 30 sec, and final extension of 72°C for 5min. | 409 pb  | [27] |
| dsb-728 (CTGCTCGTCTATTTTACTTCTTAAAGT) |
| TRP36-F1 (TTTAAAACAAAATTAACACACTA) | *TRP36/E. canis and E. minassensis*  | 95°C for 30s, 45°C for30 s, and 72°C for 1 min for 30 cycles. | 800-1000pb | [32] |
| TRP36-R1 (AAGATTAACTTAATACTCAATATTACT) |
| Amar msp5 eF (GCATAGCCTCCGCGTCTTTC) | *msp-5/Anaplasma* spp. | 94 °C for 5 min, 34 cycles at 94 °C for 1 min, 58 °C for 1 min and 72 °C for 1 min, and final extension at 72 °C for 10 min (1º and 2ºRounds)  | 351 bp | [33] |
| Amar msp5 eR: (TCCTCGCCTTGGCCCTCAGA) |
| Amar msp5 iF: (TACACGTGCCCTACCGAGTTA) |
| Amar msp5 eR: (TCCTCGCCTTGGCCCTCAGA) |