Genetic characteristics and public health risks of *Cryptosporidium spp.* from pigs and black goats in Hainan, China

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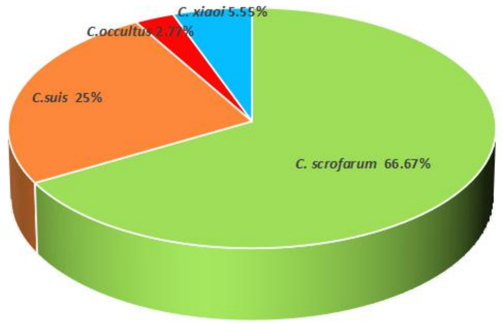
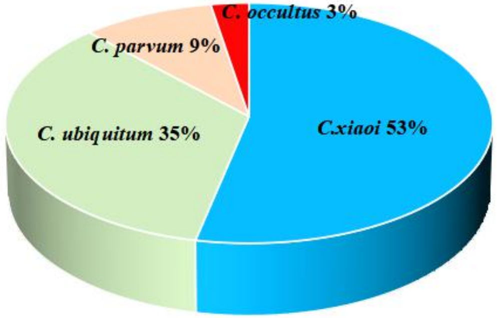
- **Cryptosporidium has currently identified 38 species and more than 40 genotypes**

- **Studies have shown that more than 90% of human Cryptosporidium outbreaks worldwide originate from Cryptosporidium C. parvum and C. hominis**





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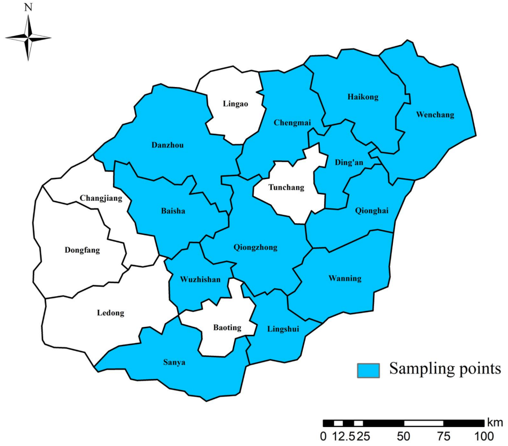
Introduction

Cryptosporidium spp. is an important zoonotic opportunistic intestinal protozoa causing serious diseases in immunocompromised population. No investigation about *Cryptosporidium* spp. in black goats and pigs in Hainan was reported. This study aimed to investigate molecular characteristics and assess the public health risks of *Cryptosporidium* spp. from pigs and black goats in Hainan, China.

Methods

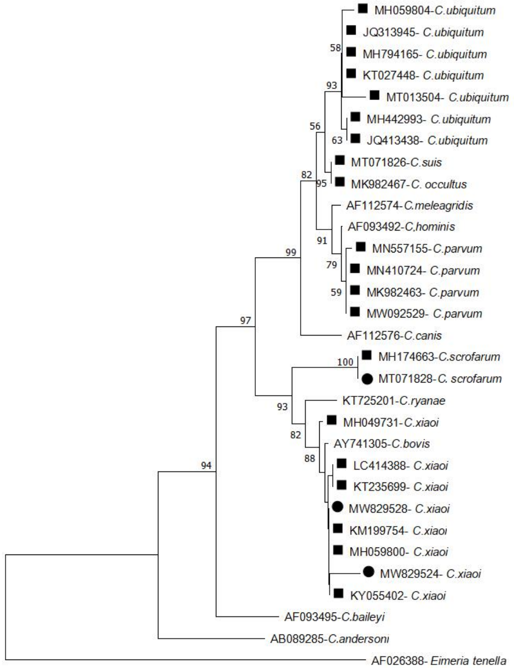
1105 fecal samples were collected in Hainan, 456 from pigs and 837 from black goats, respectively. Feces were detected for *Cryptosporidium* spp. by nested PCR of the 18S ribosomal RNA fragment and the sequences analysis.



Specific locations where samples were collected in this study

Results

The infection rates of *Cryptosporidium* spp. of pigs and black goats were 7.9% (36/456) and 9.0% (75/837), respectively. Higher infection rate were observed in younger pigs (10.4%, 34/326) and younger black goats (12.9%, 47/363) compared with adults pigs(1.5%, 2/130) and black goats(5.9%, 28/474) ($P < 0.001$). Four genotypes were identified from pigs, including *C. scrofarum* (n=24), *C. suis* (n=9), *C. xiaoi* (n=2), *C. occultus* (n=1). Four genotypes were identified from black goats, including *C. xiaoi* (n=40), *C. ubiquitum* (n=26), *C. parvum* (n=7), *C. parvum* (n=7) and *C. occultus* (n=2).



Phylogenetic relationship of the *Cryptosporidium*. The filled squares and circles represent the known and novel genotypes identified here, respectively.

Conclusions

The results showed that *Cryptosporidium* spp. was widespread in pigs and black goats in Hainan. *C.xiaoi* and *C. occultus* in pigs and *C. occultus* in black goats were first identified. *C. parvum* in black goat and *C. xiaoi* in both livestock implied that it has public health risk.