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Prevalence of *Clostridium tetani* and *Clostridium botulinum* strains in cattle and environments in Korea

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Clostridium tetani and *Clostridium botulinum*, respectively, produce *botulinum* neurotoxin (BoNT) and tetanus neurotoxin (TeTx), which is responsible for severe disease, botulism and tetanus. Several cattle botulism and tetanus occurred sporadically in Korea recently. Since these diseases could become a potential hazard to livestock industries, we investigated the distribution of *C. tetani* and *C. botulinum* in various samples of cattle farms in Korea. A total of 819 samples including cattle feces, stomach contents, hay and silages, soils, water trough were collected during 2012 to 2014, and incubated with anaerobic condition. The enrichment cultures were subjected to multiplex PCR developed in our laboratory for screening the presence of *C. tetani* and *C. botulinum* type B, C and D, and mouse neutralization test was also used for determination of the toxin type. Thirty six *C. tetani* were isolated from soils, 36 from feces, 24 from gastric contents, 7 from forage, and 11 from other sources. According to multiplex PCR, toxigenic strains were 99 (86%) of *C. tetani* isolates and non-toxigenic ones 15 (14%) of the isolates were non-toxigenic. Eight *C. botulinum* type B strains were isolated from forage and water trough, 1 C/D mosaic type from stomach contents and 18 type D from feces, stomach contents, water trough and forage. These studies demonstrated that *C. tetani* and *C. botulinum* were prevalent in cattle farms in Korea.

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