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Pyometra and cystitis are infectious diseases that frequently affect bitches, being commonly, identified in the same bitch simultaneously. The most frequent bacteria isolated from bitches pyometra and cystitis is *Escherichia coli.* In view of the importance of this agent, the aim of this study was analyzed the bacterial viability in serum of endometrial pathogenic *E. coli* (EnPEC) and uropathogenic *E. coli* (UPEC) strains isolated from the same bitch, with concomitant disease. This study included eight bitches diagnosed simultaneously with pyometra infection and cystitis caused by *E. coli* (EnPEC and UPEC) as the single infectious agent associated. The 16 strains' ability of survivability in canine serum was assessment. The bacteria were cultivated in two conditions: 5 mL of activated canine serum 40% and 5 mL of inactivated canine serum 40%. To determine growth curves, the turbidity was measured at 600 nm at 0h of incubation and every 30min during 4.5h using an automated Multiskan FC Microplate Photometer. The total colony-forming unit (CFU) was determined after 1h and 4h of incubation with activated canine serum and inactive canine serum by plating 5 µl drops of increasing dilutions (10^0 to 10^7) on LB agar medium plates, followed by overnight incubation at 37 ºC. Comparisons between EnPEC and UPEC strains from the same animal were conducted. Despite some differences in the profile of growth curves, all strains showed an increase in the growth during the incubation period. CFUs were counted in all strains after 1h and 4h of incubation in activated canine serum and inactive canine serum. These results showed the capacity of the strains to survive in the canine serum, with consequently potential of causing sepsis.