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Identification of *F. tularensis* from environmental water specimens in tularemia epidemics in Turkey by both culture and real time TaqMan PCR methods

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Aim: Tularemia, of which oropharyngeal form occurs the most often, is an endemic disease in Turkey. In this study, it is aimed to isolate of *F. tularensis* from natural water supplies thought to cause tularemia epidemiologically.

Methods: A total of 29 water specimens (7 from Corum, 12 from Sivas, and 10 from Samsun), the volumes of which were between 0.3 to 1.5 liters, from 3 different epidemic areas were collected. Water specimens were filtered by 0.22-mm-diameter cellulose acetate membranes. The membranes were placed on antibiotic added (Oxoid SR147) Cysine Heart Agar Base with blood media and incubated at 37°C in a humidified atmosphere containing 5 % CO₂ for 4-10 days. Our test procedures including water filtration and culture were carried out in the class III biological safety cabinet in the properly installed room. After the incubation, the suspected colonies on the plate seen the growth was picked to subculture using single colony method. The subcultured colonies were confirmed by *F. tularensis* antiserum (BD) and Real Time TaqMan PCR method. The surfaces of filters were washed with sterile distilled water for 15 minutes in a shaker, to get all the suspected colonies. DNA was isolated from samples obtained from filters. The primer and probe sets targeting IS*Ftu2* genome were used for Real Time TaqMan PCR method.

Results: A total of three *F. tularensis* isolates were obtained from 29 water samples (1 isolate from Corum, 1 isolate from Sivas, and 1 isolate from Samsun) by culture method. At same time, the presence of *F. tularensis* DNA from four water specimens was shown by Real Time TaqMan PCR method.

Conclusion: Although DNA presence of *F. tularensis* has been detected from water sources by PCR method in Turkey, until now, there had no isolation from water specimens by culture. In our study, the isolation of *F. tularensis* from water sources has been exhibited as first data by both culture and Real Time TaqMan PCR methods.