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Survival of *Salmonella typhi* and *Shigella flexneri* in Different Water Samples and at Different Temperatures

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Abstract: Aim: In this study, we aimed to evaluate the survival of *Salmonella typhi* and *Shigella flexneri*, which have significance for public health, in various aqueous media (distilled water, 0.9% NaCl solution, chlorinated water) and at different temperatures. Materials and Methods: The water samples mentioned above were contaminated with approximately 5×10^5 bacteria/ml of *S. typhi* and *S. flexneri*, and then stored at 37 °C, room temperature, in refrigerator (4 to 6 °C) and in deep freezer (-20 °C). From the water materials prepared accordingly, cultures were done beginning in the first 24 hours and later every other day for viability control of the bacteria until no growth was detected in three consecutive cultures. Results: We observed that *S. flexneri* in both 0.9% NaCl solution and distilled water survived the longest (87 and 83 days, respectively) when stored in the refrigerator. Similarly, *S. typhi* was found to be viable as long as 65 days in both 0.9% NaCl solution and distilled water, when stored in the refrigerator. No bacterial growth was determined in the cultures of chlorinated water samples stored at all four temperatures in the first 24 hours. Conclusions: We concluded that *S. flexneri* generally survived longer than *S. typhi* in the different water media. Having a prolonged survival of *S. flexneri* in aqueous media would present more risk than *S. typhi* for the transmission of waterborne infections.

Key Words: Survival of bacteria, *Shigella flexneri*, *Salmonella typhi*, waterborne infections

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