Detection and Identification of Salmonella spp. in a Taiwan Watershed by Molecular Technology

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Salmonella spp. is classified to gram-negative bacterium. The genus of *Salmonella* comprises more than 2,500 serotypes and its taxonomy is very complicated. *Salmonella enterica* has been divided into six subgroups which usually cause intestinal disease. Intestinal pathogens are ordinarily identified in clinical specimens by biochemical and serological assays. Detection for the presence of *Salmonella* in environmental water samples by routines culture methods is unrealistic because of the lack of an appropriate concentration and proliferation technique. Serological assay offers a precise and reliable method for differentiating isolated strains, but it is time-consuming and requires the use of more than 150 specific serum assays. Therefore, we need an effective method to investigate *Salmonella* in environmental water. Nowadays, it is desirable to use alternative methods which provide a higher discrimination and more rapid identification about *Salmonella* in laboratory. Pulsed-field gel electrophoresis (PFGE) can be used to identify *Salmonella* serovar successfully. The aim of this study is to detect the occurrence of *Salmonella* from environmental water of Puzih stream in Taiwan by polymerase chain reaction (PCR) and identify the serovar of *Salmonella* by PFGE. In this study, the occurrence frequency of *Salmonella* from Puzih stream was 48% (24/50). The 24 positive water samples were further identified as *S.*Typhimurium (3/24), *S.*Bareilly (1/24), *S.*Isangi (15/24), *S.* Paratyphi B var. *Java* (2/24), *S.*Potsdam (1/24) and *S.*Newport (2/24) by PFGE. The result shows that PFGE is a powerful tool to discriminate serovars of *Salmonella.*

Keywords: *Salmonella* spp.; Serological assay; PCR; PFGE