

SCCWRP Annual Report 2010

Comparison of *Enterococcus* species selectivity using Enterolert and EPA Method 1600

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ABSTRACT

Enterococcus species selectivity between Environmental Protection Agency (EPA) Method 1600 and Enterolert® was compared using 17 environmental samples (influent and effluent of four wastewater treatment plants, ambient marine water from seven different beaches, and urban runoff). *Enterococcus* colonies from EPA 1600 agar plates and Enterolert wells were identified and species composition was compared using Vitek® and biochemical testing. *Enterococcus faecium* and *Enterococcus faecalis* were the dominant species among the 1345 isolates, followed by *Enterococcus gallinarum* and *Enterococcus casseliflavus*. EPA Method 1600 and Enterolert produced comparable ratios of enterococcal species for most beach water and urban runoff samples; however, Enterolert was selective for *E. faecalis* in wastewater samples. This selectivity was experimentally confirmed in the laboratory through analysis of samples with known concentrations of *E. faecium* and *E. faecalis*. The species distribution of *Enterococcus* isolated from most environmental samples differed only slightly between the two methods; however, when distributions did differ, EPA Method 1600 characterized *Enterococcus* populations more accurately. EPA Method 1600 and Enterolert are used interchangeably in beach-water quality monitoring programs that measure *Enterococcus*, with comparable reliability for enumeration purposes in most cases. However, the species selectivity observed in Enterolert may explain why numerical results occasionally differ when both methods are used to measure concentrations of *Enterococcus* in the same sample. Due to this selectivity, the EPA Method 1600 is preferred over Enterolert for characterizing the species distribution of culturable *Enterococcus* in the environment.

Full Text

ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/2010AnnualReport/ar10_067_073.pdf