Failure To Detect *Salmonella enterica* Serovar Dublin on Aes Laboratoire Salmonella Agar Plate

Isolation and identification of *Salmonella enterica* from clinical specimens are an important component of the workload of clinical laboratories. Detection of *S. enterica* in specimens of feces is dependent on plating on selective and differential media both directly and following enrichment in selenite broth. Recently new differential media have become available (1, 4) including the Aes Laboratoire Salmonella Agar Plate (ASAP) medium (Aes Laboratoire). *S. enterica* produces distinctive pink to purple colonies on ASAP medium based on the enzymatic action of *S. enterica* Cβ esterase on a chromogenic substrate, magenta-cap (5-bromo-6-chloro-3-indolylcaprylate). The medium also contains a second chromogen, X-β-d-glucopyranoside, which is hydrolyzed by β-β-glucosidase produced by *Klebsiella* spp. and *Enterobacter* spp. (blue to blue-green colonies). *Serratia* spp. produce both Cβ esterase and beta-glucosidase, resulting in violet blue colonies. Most other species of bacteria result in white colonies. Following resuscitation from storage at −70°C on unselective medium, we subcultured a single colony of each of 320 isolates of *S. enterica* comprising *S. enterica* serovar Typhimurium (*n* = 6), *S. enterica* serovar Enteritidis (*n* = 99), *S. enterica* serovar Typhi (*n* = 83), and 34 other serovars (*n* = 132) on ASAP medium. All isolates produced colonies of the expected color, except for two isolates of *S. enterica* serovar Dublin, which produced white colonies. Thirty additional nonduplicate isolates of *Salmonella* serovar Dublin were subcultured onto ASAP medium. All 30 yielded white colonies. Isolates of *Salmonella* serovar Dublin were from diverse sources including humans and animals from Ireland and two isolates received as part of quality assurance panels from outside Ireland. Pulsed-field gel electrophoresis (PFGE) analysis (restriction enzyme *XbaI*, Pulse-Net protocol) on the 32 *Salmonella* serovar Dublin isolates showed six patterns differing by one or two bands. Twenty-six isolates were indistinguishable, and the remaining six isolates gave five distinguishable patterns. One isolate from outside Ireland was indistinguishable from most local isolates, but the other differed from the predominant pattern by one band.

The failure of *Salmonella* serovar Dublin isolates to produce the expected pink to purple colonies suggests that these isolates do not produce Cβ esterase sufficiently quickly or in sufficient quantity to result in color change after overnight incubation. After reincubation for a total of 72 h a faint pink color was noted for some isolates. Limited diversity of *Salmonella* serovar Dublin on PFGE analysis with *XbaI* has been reported previously (3). Likewise for *S. enterica* serovar Enteritidis (also a group D1 salmonella) isolates of different phase types and from different countries are often indistinguishable on PFGE with *XbaI* and additional enzymes (2). This collection included two isolates from outside Ireland that were very closely related to isolates from Ireland on PFGE. This collection of isolates is probably representative of the spectrum of the diversity that exists within *Salmonella* serovar Dublin. Failure to produce the expected color on ASAP medium is likely to be a frequent, though perhaps not universal, property of isolates of this serovar.

These results indicate that *Salmonella* serovar Dublin may go undetected if laboratories use only ASAP medium as a differential medium for detection of *S. enterica*. Given the virulence of *Salmonella* serovar Dublin (5), its detection is particularly important.

REFERENCES


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