

Abstract

Method for Determining the Presence or Absence of Shiga Toxin-Producing *Escherichia coli* (STEC) in a Food Sample

The present invention relates to a method which will lead within a shorter period of time to reliable results with respect to the presence or absence of pathogenic STEC (Shiga toxin-producing *Escherichia coli*) in food samples.

The method comprises

- incubating the food sample in a culture medium enabling growth of *E. coli* to obtain an *E. coli* stock medium;
- performing a lysis of the *E. coli* in the stock medium to obtain a sample solution comprising *E. coli* DNA; and
- subjecting the sample solution to a first series of polymerase chain reactions (PCR), using primers to amplify the following *E. coli* genes or fragments thereof:
 - *stx1* and/or *stx2* encoding Shiga toxin 1 and Shiga toxin 2, respectively,
 - for each STEC serogroup to be determined, the subtype of the *eae* gene of that serogroup encoding an intimin, and
 - for each STEC serogroup to be determined, a biomarker gene specific for that serogroup;

and, in case that *stx1* and/or *stx2* as well as the *eae* gene and the specific biomarker gene for at least one serogroup are amplified in the first series of PCRs:

- verifying the presence of the one or more specific serogroups of STEC by performing a second series of PCRs on concentrates of the *E. coli* stock medium and, optionally, a third series of PCRs on single *E. coli* colonies derived from the concentrates.

Figure 1