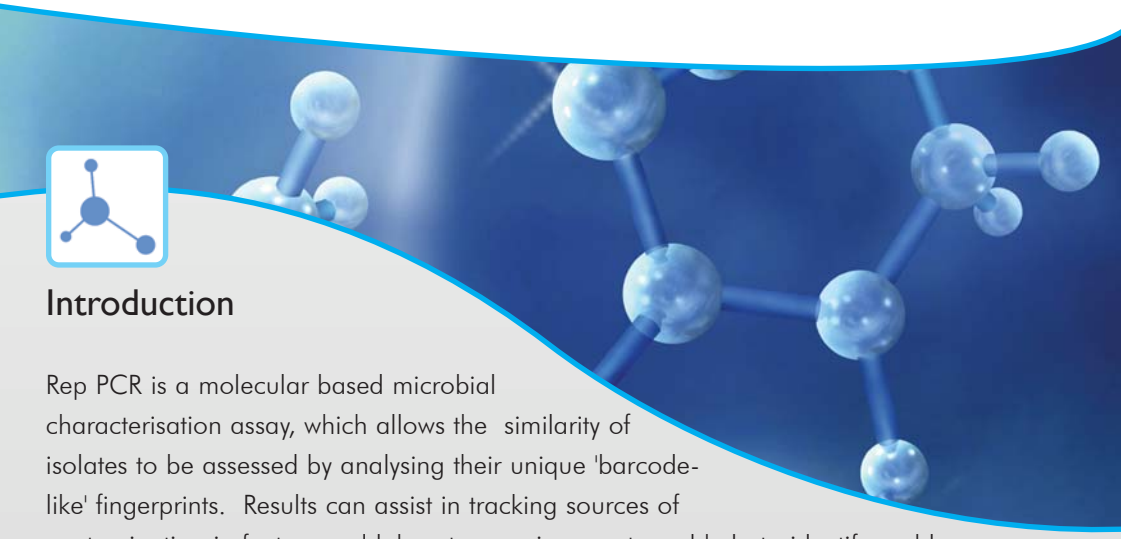
Microbial characterization services Repeat-based Polymerase Chain Reaction (rep PCR)

Campden BRI
food and drink innovation



Introduction

Rep PCR is a molecular based microbial characterisation assay, which allows the similarity of isolates to be assessed by analysing their unique 'barcode-like' fingerprints. Results can assist in tracking sources of contamination in factory and laboratory environments and help to identify problems quickly. In addition, the assay can be used to check culture authenticity. The test can be used for the major bacterial pathogens and spoilage organisms, anaerobes, probiotic organisms, yeasts and moulds. **Our Rep PCR service uses species specific analysis to increase the power to differentiate between isolates (in 6h for urgent request) to help in very rapid problem solving.**

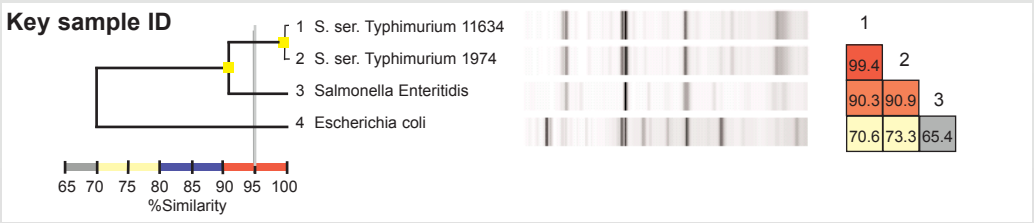
Test details

The test involves using small DNA fragments (primers) which recognise a target sequence that occurs throughout the genetic make up of the strain (genome). During the PCR, the regions between these primers are replicated (amplified) exponentially, resulting in fragments of different sizes. These are separated by size to create a characteristic profile which can be compared to determine similarity between patterns (which correspond to the isolates analysed).

Format of results

The results are typically displayed as a similarity matrix which is colour coded to assist interpretation (refer to Figure 1 below for an example matrix). We interpret the data and comment on the similarity of the isolates in our report, i.e. whether they are different or indistinguishable from each other.

Figure 1: Example similarity matrix using reference *Salmonella* and *E. coli* isolates



The matrix shows that the two S. Typhimurium strains have a similarity of 99.4%, whilst they are only 90% similar to S. Enteritidis. These results indicate that the *S.* Typhimurium strains are indistinguishable from each other at this level of investigation. An *E. coli*, added to the comparison as a reference, shares between 65 and 70% similarity with the *Salmonella* isolates.

Contacts

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