

Alternative methods in tracking sources of microbial contamination in waters

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Abstract

A key factor in the management and remediation of impaired ground- and surface water is the ability to distinguish the sources of faecal contamination. Several approaches have been adopted as microbial source tracking methods (MST), which are generally classified as culturing, phenotypic, genetic, and chemical MST. None of the techniques used thus far can be considered a standard; important factors, such as the statistical correlation between the source and the faecal indicator and the understanding of the environmental fate of the faecal pollutants, still need attention.

The most promising MST methods available today are based on the genetic fingerprinting of faecal micro-organisms. However, research is very active also in the investigation of pharmaceuticals and personal care products discharged in the environment together with faecal waste.

An updated overview of MST methods to distinguish human from animal sources of faecal pollution is presented here, focusing particularly on the potentialities of new chemical tracers.

Keywords: faecal contamination, microbial source tracking methods, bacterial source tracking methods, pharmaceuticals and personal care products