Assessment of source tracking methods for application in spring water

Author(s) Wicki, Melanie; Auckenthaler, Adrian; Felleisen, Richard; Karabulut, Fatma; Niederhauser, Isabel; Tanner, Marcel; Baumgartner, Andreas
Author(s) at UniBasel Tanner, Marcel ;
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For discriminating between human and animal faecal contamination in water, microbial source tracking (MST) approaches using different indicators have been employed. In the current study, a range of 10 such MST indicators described in the scientific literature were comparatively assessed. Bacteriophages infecting host strains of Bacteroides (GA-17, GB-124 and ARABA 84) as well as sorbitol-fermenting bifidobacteria proved useful for indicating human faecal contamination while Rhodococcus coprophilus was associated with animal-derived faecal contamination. These potential source indicators were present in samples of faecal origin, i.e. either in human wastewater or animal waste, from many different regions in Switzerland and therefore showed a geographic stability. In addition, the MST indicators were abundant in surface water and were even sensitive enough to detect faecal contamination in spring water from two study areas in Switzerland. This is the first study that has compared and successfully applied MST methods in spring water.

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