

Water quality test

For detecting and determining the origin of faecal contamination

Water contaminated by faeces presents a high risk to health all over the world. Detecting conventional faecal indicators such as *Escherichia coli* (*E. coli*) and *Enterococci* facilitates the determination of faecal contamination, but does not reveal any details about its origin – such as whether the contamination is attributable to waste water originating from households or to other causal factors, such as grazing livestock or wild animals. The identification and correct classification of the source of faecal contamination helps to manage the water catchment area in an efficient and optimised way and helps thus to improve the protection of water resources. The usual standard form of cultivation-based analysis takes two to three days from the sampling to the result.



New Solutions

In cooperation with the spin-off BioTrac, the Research Group Environmental Microbiology and Molecular Ecology as well as the Inter-University Cooperation Centre for Water and Health (ICC Water & Health) at TU Wien took a new approach and developed a technology which is now mature and is used by major water providers.

The new technology is based on a molecular-biological examination of DNA traces in water which point to specific attributes of human and/or animal origin. These DNA markers are determined with the use of a highly sensitive amplification procedure which enables detection of nanogram to pictogram quantities of fresh faeces in a water sample.

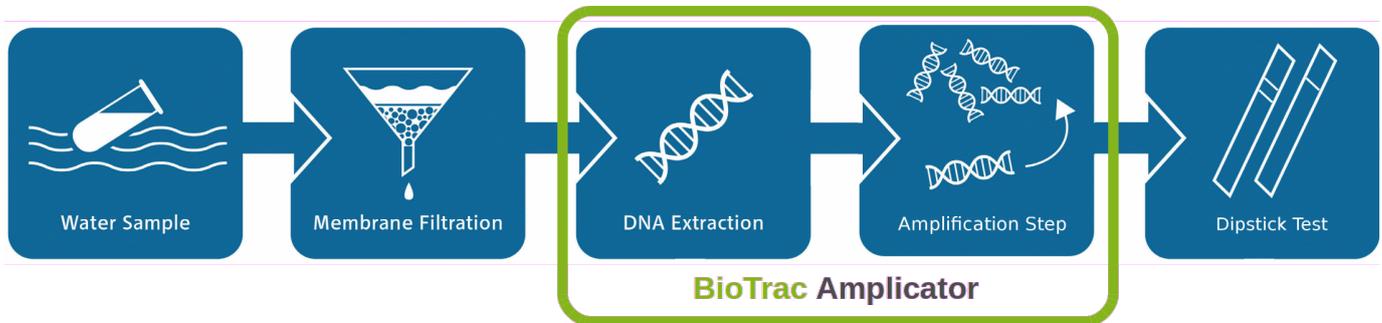
This technology responds to different groups of faecal sources on a highly sensitive basis. In contrast to the conventional methods, it is possible

to differentiate between human and animal sources. This procedure has been tested and applied in numerous surveys in Europe, the USA, Asia and Oceania.

Applications

It is used for applications in environmental diagnoses for examining the source of faecal contamination, water quality analyses, water resources management and risk management for drinking water safety concepts.

The test method which provides the basis for this new procedure has been successfully used to provide a continuous examination of the water resources which are used to supply drinking water to a city with over one million inhabitants for several years by now.

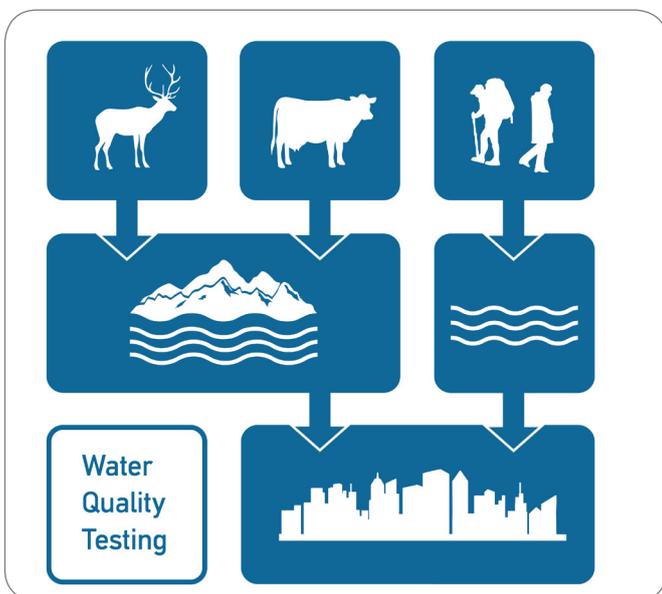


The Amplicator, which enables the rapid, straightforward detection of the contamination, was developed in cooperation with BioTrac. All that is needed is a small analysis device in combination with special reagents in order to multiply the specific DNA traces. An evaluation of the results takes place with straightforward test strips of the type that is known from pregnancy tests. With the new Amplicator, the entire analysis time, from the sampling to the result, takes just three hours.

Benefits for you

The method enables the specific determination of a faecal contamination of human and/or animal origin.

- Results which are ten times more precise than a conventional substantiation via E.coli
- Highly sensitive to sources of faecal contamination
- Standardised, tested and proven
- Quick and reliable
- Low cost and economical
- Specialist expert knowledge not required



In contrast to other test methods, neither expert knowledge nor a specific education is necessary to be able to complete this test which was developed by TU Wien and BioTrac. A sophisticated processing of samples, evaluations or interpretations is not necessary.

The Amplicator can be used with ease after initial training. The results provide clear yes/no results to the questions regarding faecal contamination and the type of its source.

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