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ICHNAEA
A Software System for the Microbial Source Tracking Problem

A software system for the Microbial Source Tracking (MST) problem has been developed in order to solve the problems of the current predictive models. It provides the accuracy and the precision of the prediction, the estimation for both the degree of dilution and the age of the pollution for the analyzed example. Partners to license the system and/or to establish commercial agreements along with technical cooperation are sought.

The Challenge

Nowadays, faecal pollution in water is one of the main causes of health problems in the world, and is associated with several thousands of deaths per day, being a main vehicle of pathogen transmission. Microbial Source Tracking (MST) is a recently coined term that includes different methodological approaches that pursuit the determination of the origin of faecal pollution in water by the use of microbial or chemical indicators. Many studies exist that develop predictive models for MST, and most of them have been based on the definition of models at the point of source, assessing mainly the specificity and sensitivity of indicators or their combinations. Progressively, the need has arisen to assess the effects of the dilution of the contributions of faecal pollution in receiving waters as well as the persistence of these indicators on the environment. However, there still are many problems to face, including independence of geographical location, nature of the dominant faecal pollution contributions, persistence of indicators and their measured parameters, effects of dilution in watersheds and presence of complex mixtures from several distinct animal species.

The Technology

The invention is focused in a software system that represents a step forward in the solution of the general MST problem. The system accepts examples showing different faecal concentration levels (dilutions), uses indicators with different environmental persistence, and can be applied at different geographical or climatic areas, thus tackling many of the above open problems. The system can be *trained* by users with their own data matrix, developed with the MST indicators that they select within their geographical and climatic environment. Consequently, end users can adapt this software to the analysis of their results on routine MST studies. The developed prediction system is providing the accuracy and the precision of the prediction, the estimated degree of dilution and the age of the pollution for the analyzed example. Moreover, complementary MST indicators (among those constituting the user-supplied data matrix) are suggested to further improve on the confidence of the MST prediction.

Innovative advantages

- End-users can obtain a prediction of a MST sample based on their own training database using part or all of their routine parameters and indicators
- End-users can specify calculated die-offs of the measured parameters
- End-users can obtain feedback about the importance of the supplied parameters and indicators

Current stage of development

The system is ready for use. A Graphical User Interface (GUI) for remote access using Web Services technologies is currently under development

Applications and Target Market

The software system represents an step towards solving the current MST problems.
This new software could be of interest for analytical laboratories of microbial contamination, environmental agencies, research groups, etc.

Accurate predictions for MST problems

Faecal pollution in water is one of the main causes of health problems in the world
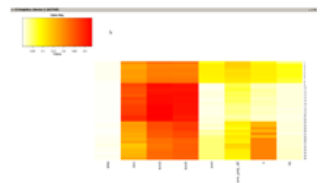
Allows a prediction of a MST sample taking into account geographical location, degree of dilution and age of pollution

Business Opportunity
License technology or establish commercial agreements

Patent Status
Copyright software registered

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