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A new microbiological risk analysis tool for cryptosporidium to support decision making in drinking water treatment plants

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One of the main hazards over the water quality in the water supply systems from surface raw water is cryptosporidium, considered by World Health Organization, as the most dangerous emergent pathogen. Analitycal methods for cryptosporidium are expensive, laborious and they do not have enough precission, on the other hand, labs analyze discretal samples, while drinking water production is a continuous process. In that point, the introduction of risk models in necessary to check the ability of safety of the water produced. The advances in tools able to quantify risk applied to conventional treatment drinking water treatment plants is quite useful for the operators, able to assess about decisions in operation and in investments. The model is applied into a real facility. With the results, it's possible to conclude interesting guidelines and policies about improving plant's operation mode. The main conclusion is that conventional treatment is able to work as effective barrier against cryptosporidium, but it is necessary to assess the risk of the plant while it is operating. Taking into account limitations of knowledge, risk estimation can rise non tolerable levels. In that situation, the plant must make investments in the treatment improving the operation, to get tolerable risk levels.