

عنوان مقاله:

Wastewater-based epidemiology for novel Coronavirus detection in wastewater

محل انتشار:

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خلاصه مقاله:

The entire world is reeling under the worst pandemic of last ۱۰۰ years. Over ۱۲۸ million people have been infected with it and ۲.۸ million deaths have already taken place, till ۳۰th March ۲۰۲۱. The identification of materials positive cases is the first step towards its containment and treatment. However, testing of individuals is an extensive, expensive and time-consuming exercise. In addition, societal taboos are also associated with infected individuals resulting in very few people volunteering for testing, esp. in the developing and under-developed world. An alternative approach that circumvents individual testing is the wastewater-based epidemiology. A state-of-the-art review of this method is provided in context of its utility for COVID-۱۹ detection. This technique relies on collecting and testing samples from sewers and/or wastewater treatment plants for the presence of pathogens and then using that data to determine and predict the spread of the infection, thereby allowing the provision of appropriate containment and treatment steps. The study covers key aspects of wastewater-based epidemiology application for COVID-۱۹ detection including its need, detailed process of detection and assessment, data analysis, economics and challenges to its application. Findings from a number of case studies are presented to elucidate the utility of this technique. It is clearly seen that WBE-based approach is a much better strategy as compared to individual testing and can be adopted to prevent further spread of Covid-۱۹. The work is expected to further emphasize the application of this method for COVID (and other pandemic) detection and implementing containment strategies. This is clearly a much more economical and non-intrusive approach as compared to the individual testing.

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Covid-۱۹ (Coronavirus disease), Infection, Pandemic, Polymerase chain reaction (PCR), Ribonucleic Acid (RNA), (Wastewater-based epidemiology (WBE

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