CLEAN WATER

Algae-based water filters

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Access to clean drinking water remains a problem in many developing countries, and affordable point-of-use water treatment is needed to reduce the spread of water-borne diseases. In Bangladesh, piped water is often contaminated and only available for a few hours a day. As such, it must be boiled prior to consumption, but this requires either fuel that may be unavailable to the poorest families or wood that may cause deforestation. One solution is water filtration, but abundant low-cost materials are required.

Olof Gustafsson and colleagues from Uppsala University, Sweden and the University of Dhaka, Bangladesh made filter papers using nanocellulose from a locally available macroalgae called *Pithophora*. This robust algae thrives in

nitrogen- and phosphorus-contaminated water and could be cultivated and harvested in large quantities in Bangladesh. The filter paper's performance was measured using simulated wastewater containing latex nanobeads and in vitro viruses. The filters also showed complete removal of all infectious pathogens when tested on water samples collected from the Turag River and Dhanmondi Lake in Bangladesh. This study provides a way for locally grown algae to be converted into advanced filters for point-of-use water filtration.

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