

## New gadget for water purification: a 'nano tea bag'

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Source: wikipedia

(PhysOrg.com) -- Scientists in South Africa have come up with a novel way of purifying water on a small scale using a sachet rather like a tea bag, but instead of imparting flavor to the water, the bag absorbs toxins, filters out and kills bacteria, and cleans the water.

The bag, which fits into the neck of an ordinary water bottle, was developed by scientists at Stellenbosch University in South Africa to help communities with no <u>water purification</u> facilities to clean their water. The bags are made of inexpensive tea bag material but instead of containing tea they contain nano-scale antimicrobial fibers that filter out contaminants and microbes, and granules of activated carbon that kill the bacteria. The nano-fibers are about one hundredth the width of a human



hair.

According to researcher Marelize Botes, one sachet can clean a liter of the dirtiest water to about the same water quality of bottled water. Once the bag has been used it is discarded and a new bag is fitted in the neck of the bottle. The discarded bags have no environmental impact as they disintegrate in only a few days and the materials are not toxic to humans.

Inventor of the filter, Dean of the Faculty of Science at Stellenbosch University, Professor Eugene Cloete, who is a microbiologist, said the filter presents a decentralized, point-of-use technology. As such it should find acceptance in the places where it is needed and where there is insufficient infrastructure for piped water. Professor Cloete specializes in water quality, water resource management and the use of nanotechnology in water applications. He is also director of the University of Pretoria's Water Institute and a senior fellow of the Water Institute of South Africa (WISA).

The sachet filter is still being tested by the South African Bureau of Standards, but Botes said early testing on samples of <u>river water</u> near the university were successful. The bags are expected to be available by the end of the year at a cost of about half a US cent (three South African cents) per bag, which makes it affordable even for poor communities in Africa, where millions of people do not have access to clean drinking water, and where water-borne diseases are a major problem.

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