

# Sant's river needs satyagraha against superbugs

## Sabarmati Riverfront Flush With Antibiotic-Resistant E. Coli: Study

PaulJohn@timesgroup.com

Ahmedabad: Back in 1915, when Mahatma Gandhi made Ahmedabad his home, he would walk into the Sabarmati for a quick, refreshing dip. Today the dip could potentially make the Sant of Sabarmati very ill considering that his beloved river is now teeming with deadly superbugs.

The Sabarmati, especially the stagnant water of the riverfront, is infested with antibiotic-resistant strains of E. coli bacteria which does not respond to six most

common antibiotic drugs, says a scientific study carried out by the discipline of earth sciences, IIT-Gandhinagar. The study demands new sewage treatment standards.

The resistant bacteria strains can cause a range of illnesses including diarrhoea, urinary tract infections, respiratory illness, and pneumonia. In the form of a superbug, the bacteria can have deadlier and incurable manifestations.

The highest concentration of E. coli in the riverfront was fo-



Chandrabhaga sewage outlet on riverfront near Sabarmati Ashram

und near the Sabarmati Gandhi Ashram, where more than 70,000 colony-forming units (cfu) per ml (a measure of viable bacterial cells) were found. According to the Central Pollution Control Board (CPCB) guidelines, the permissible limit is between 500 and 5,000 CFU/100 ml.

An alarming 40% of the E. coli bacteria showed resistance to common antibiotics such as levofloxacin (LVX), ciprofloxacin (CIP) and norfloxacin (NFX). Resistance was also in evidence against tetracycline (TC) and sulfamethoxazole (ST). The E. coli sample showed

a 60% resistance to kanamycin monosulphate (KM).

The IIT-GN research was carried out under the Collaborative Regional Research Programme (CRRP) of Asia Pacific Network (APN). The research team consisted of lead principal investigator (PI) professor Manish Kumar and IITGN Scholars Bhagwana Ram, Subhash K Sharma, and Arbind Patel.

The samples on the riverfront were taken from the stretch between Sardar Bridge and Ellisbridge on the west bank where thousands gather for events such as the Kite festival, marathons, cyclothon, and Garib Kalyan Melas (for the urban poor). The findings signal grave health risks for Amdavadi, who throng the Sabarmati riverfront.

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## Sullage puts resistant bacteria in river

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Water samples from two extreme ends of the Nehru bridge and the Fatehwadi canal where concentration of E. coli bacteria was found to be around 20,000 cfu/ml each. At Nehru Bridge, the E. coli showed no resistance to the six antibiotics. At Fatehwadi canal the samples were found to be resistant to TC.

"Waste water receives bacteria which are previously exposed to antibiotics from various sources like animal husbandry units, hospitals, and domestic households. Waste water plays a significant role in spreading antibiotic-resistant bacteria," says Kumar.

"Antibiotic resistance rises with growing local urbanization. It is need of the hour to establish robust sewage treatment facilities to save our rivers from being turning into disease cess-pools", added Kumar.

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**Source:** Times of India (Front Page Anchor Story)

**Link:** <https://timesofindia.indiatimes.com/city/ahmedabad/sants-river-need-satyagraha-against-superbugs/articleshow/66821140.cms>

**Date:** 27/11/2018