

New Device to Detect Antibacterial in Milk

A new device that detects antibacterial in milk has been developed by researchers at the ICAR-National Dairy Research Institutes at Bengaluru and Karnal, claims their recent study published in the journal Food chemistry.

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Antibacterials are frequently given to dairy animals to improve their growth and productive performance, and to lower the incidence of disease. According to a report by US Food and drug administration, the most common antibacterial given to cattle is tetracycline. The indiscriminate use of antibacterials for dairy management causes contamination of milk by antibacterials that are harmful for human consumption causing undesirable alterations in gut micro biota, and allergies. In the long run, this may also cause antibacterial resistance that is a serious concern as per WHO report 2011. Milk meant for human consumption, hence, should be tested to confirm that it is free from antibacterials and safe. This calls for a rapid, user-friendly, specific, and inexpensive technique for the on-site detection of antibacterials such as tetracycline in milk.

Researchers at the ICAR-National Dairy Research Institutes in Bengaluru and Karnal have synthesized a new device using gold nanoparticles coated with tetracycline antibodies that detect the antibacterial tetracycline in milk with high sensitivity and specificity. The 20 nanometer wide gold nanoparticles effectively bind tetracycline antibodies and detect as low as 30 parts per billion antibacterial in a few drops of milk. The device can be stored for up to 4 months without any loss of its detection capacity. The scientists claim, "anyone can perform the test by placing few drops of suspected milk sample on the (device). Therefore, this test can be adopted by any consumer, household women, individual farmers, small dairy enterprises, even by commercial dairy industry. It works similar to that of human pregnancy detection kit. Results can be obtained within 5 min."

Since, this test can be used in both raw and boiled milk, it can be used at home, or in industries to confirm that the milk is fit for human consumption.

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