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Researchers develop test for checking substandard antibiotics

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A group of researchers from Colorado State University in the US, has created a paper-based test that can quickly determine whether an antibiotic sample is of appropriate strength, or diluted with filler substances like baking soda. Similar to the mechanism of a home pregnancy test, a strip of paper turns a distinctive color if a falsified antibiotic is present.

For the test, the researchers used the bacterial enzyme, called beta-lactamase, to empower their device to detect the presence of antibiotics in a given sample. Bacteria naturally produce this enzyme that can give them resistance to antibiotics by chemically binding to portions of the antibiotic molecule.

With a good antibiotic dose, there is little color change in the paper strip, but in a falsified or weakened antibiotic, the paper goes red, because the enzyme instead reacts with a molecule called nitrocefin present in the paper. In short, yellow means good (appropriate strength antibiotic); red means bad (diluted antibiotic).