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Title	Fluorescence based rapid E. coli Detector
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Abstract

We have developed a fluorescence based rapid detection for E. coli which is an indicator for water quality identification. This portable detector will trim down the time taken to detect E. coli in the water from a few days to just a couple of minutes. Moreover, with the use of enzyme-substrate reaction between the enzyme β-D glucuronidase (GUD) in the E. coli and the substrate 4-methylumblliferyl-β-D glucuronide (MUG) resulting in a byproduct of 4-methylumbellliferone (4MU), the fluorescence emitting from this byproduct is then detected by our system and be enumerated for the number of E. coli. Hence, we have tested our system with two different pH solution, distilled water and tap water with pH values at 6.68 and 7.81 consecutively. Our developed system can detect the byproduct of 4MU in the concentration range of 0.001 μM to 2 μM for the distilled water and 0.001 μM to 0.1 μM for the tap water, which can then be used for the enumeration of E. coli.