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Advances in Developing Rapid, Reliable and Portable Detection Systems for Alcohol

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Abstract

Development of portable, reliable, sensitive, simple, and inexpensive detection system for alcohol has been an instinctive demand not only in traditional brewing, pharmaceutical, food and clinical industries but also in rapidly growing alcohol based fuel industries. Highly sensitive, selective, and reliable alcohol detections are currently amenable typically through the sophisticated instrument based analyses confined mostly to the state-of-art analytical laboratory facilities. With the growing demand of rapid and reliable alcohol detection systems, an all-round attempt has been made over the past decade encompassing various disciplines from basic and engineering sciences. Of late, the research for developing small-scale portable alcohol detection system has been accelerated with the advent of emerging miniaturization techniques, advanced materials and sensing platforms such as lab-on-chip, lab-on-CD, lab-on-paper etc. With these new inter-disciplinary approaches along with the support from the parallel knowledge growth on rapid detection systems being pursued for various targets, the progress on translating the proof-of-concepts to commercially viable and environment friendly portable alcohol detection systems is gaining pace. Here, we summarize the progress made over the years on the alcohol detection systems, with a focus on recent advancement towards developing portable, simple and efficient alcohol sensors.

Keywords

Alcohol detection, Sensors, Biosensors, Enzymatic, Microbial, Lab-on-Chip.

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