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| Title | A Review on Potential Electrochemical Point-of-Care Tests Targeting Pandemic Infectious Disease Detection: Covid-19 as a Reference | | |
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| Abstract |  |
| Fast and accurate point-of-care testing (POCT) of infectious diseases is crucial for diminishing the pandemic miseries. To fight the pandemic coronavirus disease 2019 (COVID-19), numerous interesting electrochemical point-of-care (POC) tests have been evolved to rapidly identify the causal organism SARS-CoV-2 virus, its nucleic acid and antigens, and antibodies of the patients. Many of those electrochemical biosensors are impressive in terms of miniaturization, mass production, ease of use, and speed of test, and they could be recommended for future applications in pandemic-like circumstances. On the other hand, self-diagnosis, sensitivity, specificity, surface chemistry, electrochemical components, device configuration, portability, small analyzers, and other features of the tests can yet be improved. Therefore, this report reviews the developmental trend of electrochemical POC tests (i.e., test platforms and features) reported for the rapid diagnosis of COVID-19 and correlates any significant advancements with relevant references. POCTs incorporating microfluidic/plastic chips, paper devices, nanomaterial-aided platforms, smartphone integration, self-diagnosis, and epidemiological reporting attributes are also surfed to help with future pandemic preparedness. This review especially screens the low-cost and easily affordable setups so that management of pandemic disease becomes faster and easier. Overall, the review is a wide-ranging package for finding appropriate strategies of electrochemical POCT targeting pandemic infectious disease detection. | |