

### Role of nanomaterials in electrochemical biosensors for detection of Covid-19- A review

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Covid-19 still remains as global pandemic up surging with different variants in different countries resulted by severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2). An escalation in random testing for Covid-19 is considered as golden standard by WHO to control the spread of Corona virus. At present, the test for corona is done for detection of current infection or past infection and are classified as viral test and antibody test. Nucleic acid amplification tests (NAATs) and antigen tests are two viral based tests for detection of current virus and the serology test is antibody test for detection of past infection. Reverse transcriptase real-time polymerase chain reaction (RT-PCR) and nucleic acid hybridization strategies are the two outstanding tests used across the globe for the detection of SARS-CoV-2 for their sensitivity, but a professional technician and time-intensive are reported as the major drawbacks. A rapid, efficient, low-cost and easy-to- implement test kits are in imperative need to meet the requirement. Apart from the test for virus several other alternative hematological tests like C-reactive protein (CRP), Interleukin 6 (IL-6), D- Dimer, Ferritin, plasma levels of white blood cells (WBCs), platelets, aspartate aminotransferase (AST), alanine aminotransferase (ALT),  $\gamma$ -glutamyl transpeptidase (GGT), alkaline phosphatase and lactate dehydrogenase (LDH) became essential for confirmation of Covid-19. Electrochemical sensors are considered as potential, ultra-fast and point-of-care sensors used on home medical testing. In the present work, we present the review of various modified electrodes with different nanomaterials used as electrochemical sensors in association with testing various different parameters for detection of covid-19. A detailed discussion on the merits and demerits of present testing patterns and scope of electrochemical sensors modified with different nanomaterials and their advantages are presented.

**Keywords:** Corona Virus, Electrochemical Sensors, Nanomaterials modified electrodes, Ultra-fast and Point-of-care.