Concerted Approach to Diagnosis and Management of Anemia through Development of Cost-Effective Point-of-Care Devices

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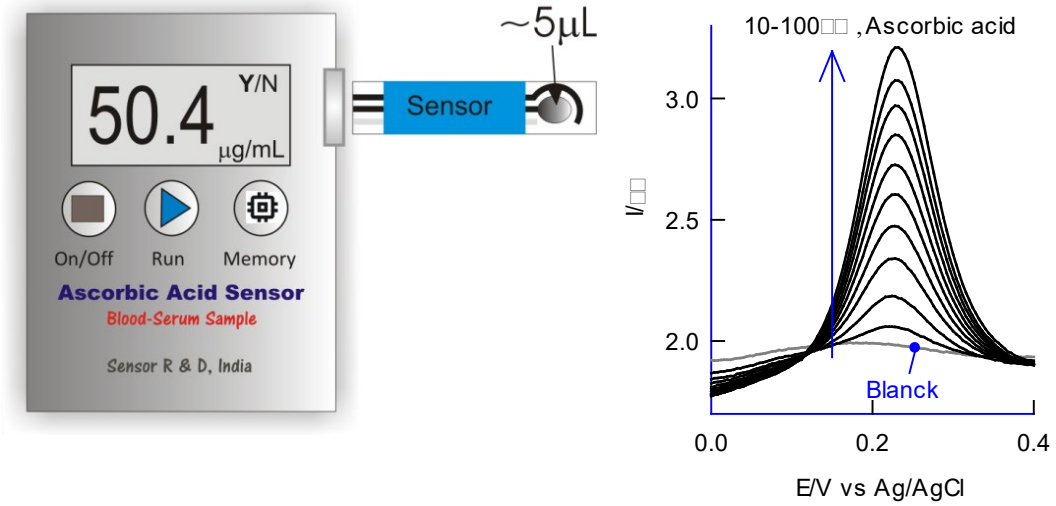
Name of the Funding Agency
Department of Science and Technology (DST)

Name of the Scheme
Technology Development System

Sanctioned Amount (in Rupees)
Rs. 27,28,401

Duration of the Project (years)
1

Graphical Abstract/ Layout



Project Description

This is a national consortium project involving eight different institutes/centers and industry partners, with the overall title "Concerted Approach to Diagnosis and Management of Anemia through Development of Cost-Effective Point-of-Care Devices". The VIT team aims to develop prototype electrochemical devices for the detection of micronutrient deficiencies, such as Vitamin B12, C, and D3, associated with anemia and related diseases. While conventional analytical methods like colorimetry, UV-Vis, and fluorescence-coupled HPLC offer reliable results, electrochemical techniques provide a more efficient route for real-time applications due to their simplicity and sensitivity. Inspired by commercial blood-sugar detection kits, this project proposes the development of simple, low-cost, and single-user electrochemical sensors for target-specific micronutrient detection.

Products/ Instruments/ Results/ Outreach Activities

- To develop minial-invasive electrochemical sensor systems for detecting malnutrition including vitamin deficiencies for Vitamins B12, C and D.
- To fabricate disposable three-in-one electrode based electrochemical sensor for the Vitamins B12, C and D
- To fabricate a prototype electrochemical sensor device for real sample analysis
- To fabricate portabl electronic device/s to detect the malnutrient contents of vitamin B12, C and D in off-line treated blood serum samples