

# Point-of-Care Haemoglobin Detection for Anaemia Diagnosis

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Anaemia is a blood disorder that affects individuals of all ages, genders, and ethnicities. It results from a deficiency in the number or quality of erythrocytes; or haemoglobin concentration in blood, leading to a deficit in oxygen transport. Anaemia is often a symptom of other diseases, which can make its diagnosis difficult [1]. Anaemia can be classified into different phenotypic groups, such as: haemolytic, normocytic, microcytic, macrocytic, hypochromic, and Iron Deficiency Anaemia (IDA), among others [2,3]. These have different causes and treatments and its diagnosis typically involves the measurement of several key biomarkers in patients' blood, such as haemoglobin (Hb) concentration, erythrocytes' physical parameters, serum iron and serum ferritin levels. Current methods for anaemia diagnosis rely on blood analysis and a complete haemogram. Herein, we developed a nanobiosensor for the electrochemical detection of Hb based on the interaction between methylene blue (MB) and Hb on screen printed carbon electrodes (SPCE). This detection method could be used for developing a Point-of-Care (PoC) biosensor, which will be user-friendly, fast, and less invasive, requiring only a small drop of blood. Additionally, it could serve as a screening and monitoring tool for other disease states in which anaemia is a symptom.

## References

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