

Hemolysis Sensor

Researchers at the University of South Florida have developed an optical spectroscopy probe that is capable of detecting hemolysis levels in whole human blood samples.

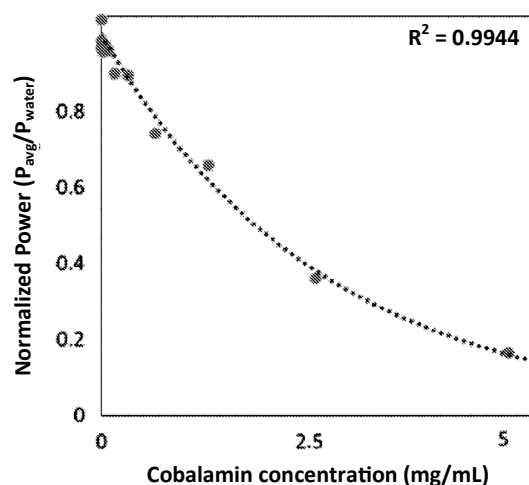
Hemolysis can be defined as the disruption of red blood cells (RBC) and release of hemoglobin and other intercellular components into the blood plasma. This RBC disruption can occur for many reasons and is indicative of several health disorders including hemolytic anemia. Current hemolysis detection methods require extensive time for sample processing followed by very imprecise visual analyses. Furthermore, there is currently no reliable way to detect hemolysis without plasma separation. This step causes delays in laboratory processing times which then negatively affect patient diagnoses and treatment regimens. Thus, there is a need for a hemolysis detection method to be developed which does not require plasma separation.

USF researchers have developed a novel optical spectroscopy probe with a distal tip and a microfluidic filtering chamber that allows entrance to liquids but not to particles. This device can analyze liquid samples for various purposes including for the detection of hemolysis in a whole blood sample without plasma separation. The concentration of a drug in a particular liquid sample can also be determined. This device allows for high sensitivity and faster detection times without the use of a reagent. Moreover, immediate quantitative results are provided, enabling a real-time, point-of-care analysis of liquids. This technology will improve patient outcomes due to earlier diagnoses and therefore a faster implementation of treatment regimens.

ADVANTAGES:

- Detects hemolysis without plasma separation
- Provides immediate quantitative results
- High sensitivity
- Shortens diagnostic time

A Novel Optical Spectroscopy Probe with Improved Sensitivity for Hemolysis Testing



Proof of Concept that the Device Can Detect an Analyte (Cobalamin) in a Sample

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