Researchers at the University of South Florida have developed a sensor capable of detecting hemolysis levels in whole human blood samples. This sensor was designed, incorporating the principles of optical absorption and microfiltration, to locally separate plasma from whole blood for analysis.

In laboratory analysis, hemolysis is the leading cause of pre-analytical errors. Hemolyzed samples represent 3.3% of routine samples received in clinical laboratories and account for up to 70% of unsuitable samples. Current hemolysis detection requires extensive time for sample processing followed by very imprecise visual analysis. Specifically, it requires transporting samples to a processing lab, plasma separation using centrifuging and visual assessment of amount of hemoglobin, which is time consuming and labor intensive.

Our sensor will provide physicians an active bed-side means for detection and quantification hemolysis levels in vitro and in vivo. Currently, there are no other technologies that enable in vivo hemolysis detection. Our researchers’ new discovery offers: a more detailed analysis; provides immediate quantitative measurements; and is reagent-free. This device has potential for numerous applications starting from measurements of glucose concentration to single-cell spectroscopy.

ADVANTAGES:
- Highly sensitive
- Point-of-care testing
- Increases the overall efficiency of the blood analysis process

Replaces Traditional Testing of Blood Samples

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