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APPLICATION OF A MICROFLUIDIC PAPER-BASED DEVICE TO THE ENZYMATIC QUANTIFICATION OF GLUCOSE IN SALIVA

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ABSTRACT

Monitoring the glucose levels is the most commonly employed method for managing diabetes. Being a chronic metabolic disorder marked by elevated levels of glucose in the blood, diabetes can lead to several complications. According to the International Diabetes Federation (IDF), diabetes has emerged as a global health challenge, with 1 in 10 adults diagnosed since 2021, and projections suggest these statistics could rise to 1 in 8 adults by 2045 [1]. Together with the aging of the population, older and elderly people are dealing with glucose monitoring daily. Although there are already several on-hand devices they mainly target blood sampling, with electronic sensing, highlighting the recent implanted sensors. However, most of these devices can be quite challenging to use for elderly people. In this context, we propose an accurate and accessible glucose measurement paper-based microfluidic device targeting saliva with no need for electronic devices reader. Microfluidic paper-based devices (μ PADs) have gained significant attention as point-of-care tools due to properties such as no need for complex equipment and fast, user-friendly measurements. The developed μ PAD offers an alternative for glucose monitoring in saliva.

Keywords: Sensor; Glucose oxidase; Peroxidase; Diabetes monitoring; Saliva sample

References

[1] International Diabetes Federation, <https://idf.org/about-diabetes/diabetes-facts-figures/>

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