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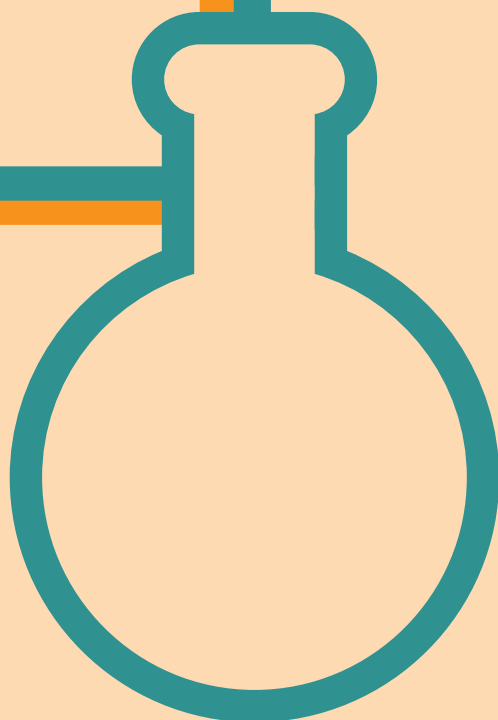
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**BOOK OF  
ABSTRACTS**



# DESIGN AND DEVELOPMENT OF A MICROFLUIDIC PAPER-BASED ANALYTICAL DEVICE FOR CALCIUM DETERMINATION IN SALIVA

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Saliva is an exocrine, aqueous and transparent fluid that contains calcium in its composition, which plays an important role in the balance of remineralization and demineralization of the teeth. The concentration of calcium in saliva depends mainly on the pH of this fluid and the salivary flow rate. The determination of salivary calcium concentration may anticipate potential problems or help to improve target therapies [1, 2]. Microfluidic paper-based analytical devices ( $\mu$ PAD) are devices composed of a hydrophilic zone, consisting of paper, and a hydrophobic zone that delimits them. The papers cellulose fibers enable liquids transportation by capillarity. In this work, a  $\mu$ PAD was developed to determine the salivary calcium concentration in an economical and in situ manner (Figure 1). The colorimetric reaction between calcium and o-cresolphthalein complexone generates a coloured product that can be quantified through the information obtained by image capture devices [3].

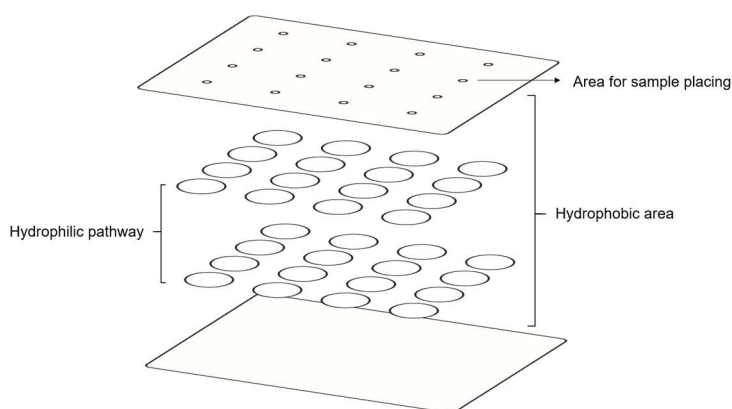


Figure 1: Exploded view of the  $\mu$ PAD developed.

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[3] Martinez, A. W.; Phillips, S. T.; Whitesides, G. M. *Anal. Chem.* **2010**, *82*, 3-10.