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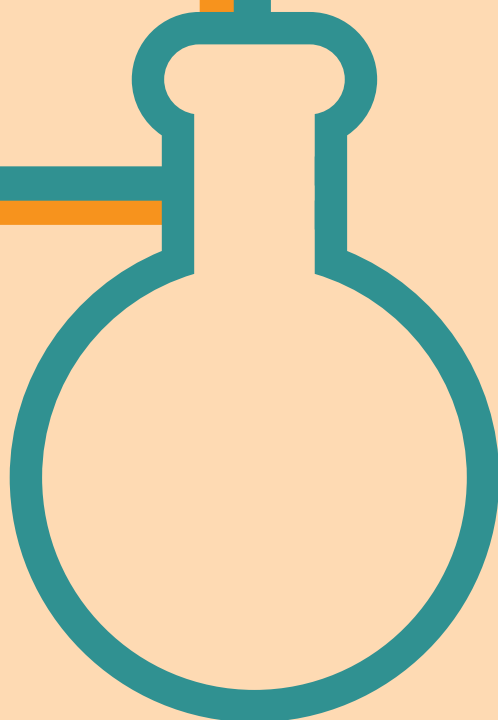
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**BOOK OF  
ABSTRACTS**



## PF 2

# MONITORING GLUCOSE, CALCIUM, AND MAGNESIUM LEVELS IN SALIVA AS A NON-INVASIVE ANALYSIS BY SEQUENTIAL INJECTION MULTIPARAMETRIC DETERMINATION

Ana Machado<sup>1,2</sup>, Rui Maneiras<sup>3</sup>, Adriano A. Bordalo<sup>1,2</sup>, Raquel B. R. Mesquita<sup>1,4</sup>

<sup>1</sup>ICBAS/UP - Instituto de Ciências Biomédicas Abel Salazar, Universidade do Porto, Porto, Portugal

<sup>2</sup>CIIMAR/CIMAR - Centro Interdisciplinar de Investigação Marinha e Ambiental, Universidade do Porto, Matosinhos, Portugal

<sup>3</sup>USF Laços, ACES Baixo Vouga, ARS Centro, Ministério da Saúde, Portugal

<sup>4</sup>Universidade Católica Portuguesa, CBQF - Centro de Biotecnologia e Química Fina - Laboratório Associado, Escola Superior de Biotecnologia, Porto, Portugal  
ammachado@icbas.up.pt

The use of saliva for diagnose and surveillance of systemic illnesses and general health has been arousing great interest worldwide being a highly desirable goal in healthcare. The main advantages of the approach are: a noninvasive sampling; stress-free; inexpensive, simple method of collection. Glucose, calcium, and magnesium concentration are three major parameters evaluated in clinical context due to their essential role in a wide range of biochemical reactions, and consequently many health disorders. In this work, a spectrophotometric sequential injection method is described for the fast screening of glucose, calcium, and magnesium in saliva samples. The glucose determination reaction involves the oxidation of the aldehyde functional group present in glucose with simultaneous reduction of 3,5-dinitrosalicylic acid (DNS) to 3-amino, 5-nitrosalicylic acid under alkaline conditions, followed by the development of color, as described by Miller [1]. The determination of both metals is an adaptation of a previous work [2] based on their reaction with cresolphthalein complexone (CPC); with the calcium interference minimized by ethylene glycol-bis[ $\beta$ -aminoethyl ether]- $N,N,N',N'$ -tetraacetic acid (EGTA) for the determination of magnesium. The developed multiparametric method enabled the determination in the dynamic range of 50-300 mg/dL for glucose, 0.1-2 mg/dL for calcium and 0.1-0.5 mg/dL for magnesium. Determination rates of 28, 60, 52 h<sup>-1</sup> were achieved for glucose, calcium and magnesium, respectively. Due to saliva viscosity and inherent necessity of dilution prior to analysis, less than 300  $\mu$ L of saliva are required for the multi-parametric determination. RSDs lower than 5% were obtained, and the results agreed with those obtained by reference methods, while recovery tests confirmed its accuracy.

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