SCIENCESPRINGDAY

FACULDADE DE CIÊNCIAS E TECNOLOGIA
UNIVERSIDADE NOVA DE LISBOA

Materials Science Department – CENIMAT|I3N

Lab-on-Paper

CENIMAT|I3N/ Microelectronic and Optoelectronic Group

CENIMAT
CENTRO DE INVESTIGAÇÃO DE MATERIAIS
i3N
INSTITUTO DE NANOESTRUTURAS, NANOMODELAÇÃO E NANOFABRICAÇÃO
INVESTIGAÇÃO, INOVAÇÃO E APLICAÇÕES DE ENGENHARIA

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PhD Student

2012-2013 Research Grant

2012 Master degree in Biomedical Engineering

2010 Degree in Biomedical Sciences

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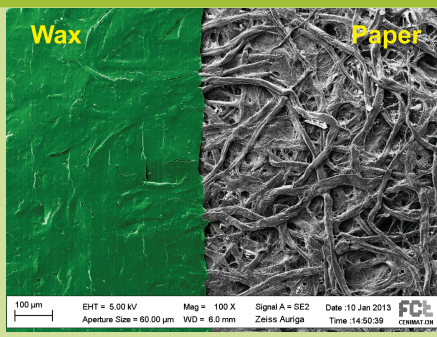
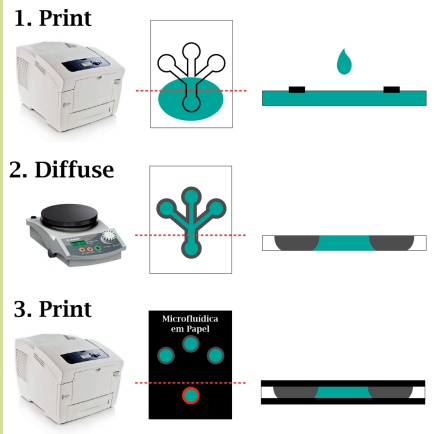
Objectives

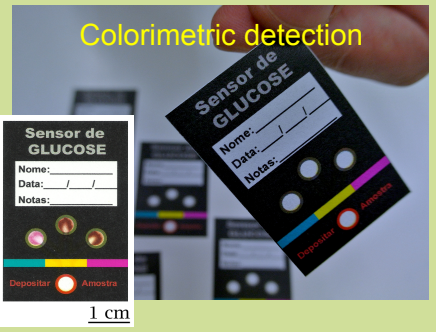
- Development of paper-based diagnostic platforms.
- Optimize the immobilization, stabilization and lateral-flow hybridization of oligonucleotide probes on paper matrices.
- Integrate isothermal DNA amplification processes and paperfluidics technologies for detecting and differentiating species and assessing antibiotic resistance.



Methodology

1. **Paper-based diagnostic platforms – wax printing method**
   - Improve ease-of-use and reduce cost of the assays
2. **Immobilization of oligonucleotides**
   - Physical adsorption
   - Spotting of bioactive inks
   - Chemical modification of cellulose
3. **Malaria diagnostic test**
   - Optimize sensitivity, specificity and minimum detection threshold
   - Assesse storage stability under different environmental conditions (e.g. humidity and temperature)





Expected Results

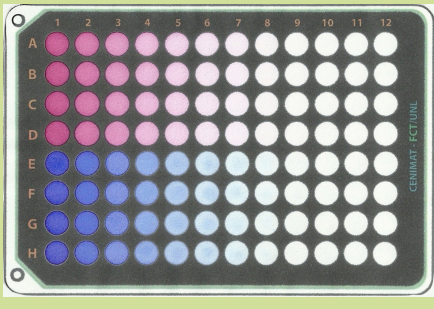
Development of paper-based microfluidic devices as **ASSURED** platforms for diagnostic tests.

Proof-of-concept

Malaria and Tuberculosis Diagnostic

Affordable
Sensitive
Specific
User-friendly
Rapid and Robust
Equipment-free
Delivered to those in need

Paper microplate



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