

### **P31: Nucleic acids extraction equipment comparison**

Ana Marques<sup>1</sup>, Fátima Monteiro<sup>2,3,4</sup>, Anabela Moreira<sup>2,4</sup>, Stéphanie Ferreira<sup>2,4</sup>, Teresa Moreira<sup>2,4</sup>, Sandra Mota<sup>2,4</sup>, Manuela Amorim<sup>2,4</sup>

<sup>1</sup>School of Allied Health Technologies, Polytechnic Institute of Porto, Vila Nova de Gaia, Portugal

<sup>2</sup>Department of Clinical Analysis and Public Health, School of Allied Health Technologies, Polytechnic Institute of Porto, Portugal

<sup>3</sup>Centro Hospitalar de S. João, Porto, Portugal

<sup>4</sup>Research Centre on Health and Environment, School of Allied Health Technologies, Polytechnic Institute of Porto, Portugal

Presenting author: [catarina1993marques@hotmail.com](mailto:catarina1993marques@hotmail.com)

**Introduction:** The nucleic acids extraction is the first step towards molecular diagnostic tests. It is a process susceptible to various interferences that can cause target material shortage.

**Objective:** The objective of this study is to compare the methodological and operational characteristics of nucleic acids extraction equipment MagnaPure LC and QIASymphony SP.

**Materials and Methods:** This cross-sectional analytical study consisted of the consultation of records of nucleic acids extraction through MagnaPure LC (n=2366, from 2011 to 2012) and QIASymphony SP (n=2196, from 2013 to 2014) to determine the reextraction rate (number of extraction repetitions within total number of extractions) for each method. Also, genomic DNA was extracted from 50 randomly selected EDTA-anticoagulated whole blood samples by each method, according to each manufacturer's instructions. DNA concentration (g/dL,  $A_{260}$ ) and purity ( $A_{260}/A_{280}$  ratio) were determined by spectroscopy (NanoDrop 8000). Operating characteristics were evaluated, including procedure time for genomic DNA extraction of 24 samples run (min) and estimated time of extraction per sample (min). Descriptive statistical analysis was performed. Two-sample T Test was applied at a significance level of 0.05.

**Results and Discussion:** LC MagnaPure and QIASymphony SP presented statistically significant differences regarding rate of reextraction (1.18% and 0.14%, respectively) and mean concentration of extracted products (8.150 g/uL and 23.822 g/uL, respectively). There were no significant differences in the degree of purity (1.67 and 1.52, respectively). Regarding operational characteristics, QIASymphony SP presented lower procedure time for genomic DNA extraction of 24 samples run than LC MagnaPure (91 and 178 min, respectively) and estimated time of extraction per sample (7 and 12 min, respectively).

**Conclusion:** The QIASymphony SP equipment presented more advantages over MagnaPure LC in nucleic acids extraction. However, the choice of nucleic acid extraction method and consequently the type of equipment should be adjusted to work flow and organization of each laboratory.

### **References**

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