DNAgard® Saliva *HT:* DNA Purification Using QiaSymphony® SP

INTRODUCTION

Saliva is increasingly popular as a starting sample for genetic analysis because saliva collection is non-invasive and more cost effective than a blood draw. DNAgard® Saliva *HT* is designed for the safe collection and automated processing of salivary DNA samples. This technical bulletin provides evidence that stabilized DNA can be purified using the QiaSymphony® SP platform from Qiagen.

MATERIALS AND METHODS

Saliva Collection and Storage

Saliva samples from 16 donors were collected into conical tubes. Samples from each individual donor were transferred into DNAgard® Saliva *HT* (DGS-*HT*) and Competitor O's devices, and processed per the manufacturer instructions. Samples were tested in triplicate.

DNA Purification

DNA was extracted from stabilized saliva samples using the QiaSymphony® DSP DNA Midi Kit (96) (Qiagen, Cat. No. 937255). DGS-*HT* samples were processed using the BIO350 or ORA350 protocols (available from Qiagen), while Competitor O samples were processed using the ORA350 protocol on the QiaSymphony® SP platform. Samples collected using DNAgard® Saliva *HT* were pulse-vortexed prior to processing to ensure homogeneity.

DNA Yield and Purity

The quantity and purity of the eluted DNA was evaluated by measuring the A_{260}/A_{280} absorbance ratio using a Take3 microplate reader (Biotek). Double stranded DNA concentrations were specifically measured using PicoGreen® fluorescence (Thermo Fisher)

RESULTS

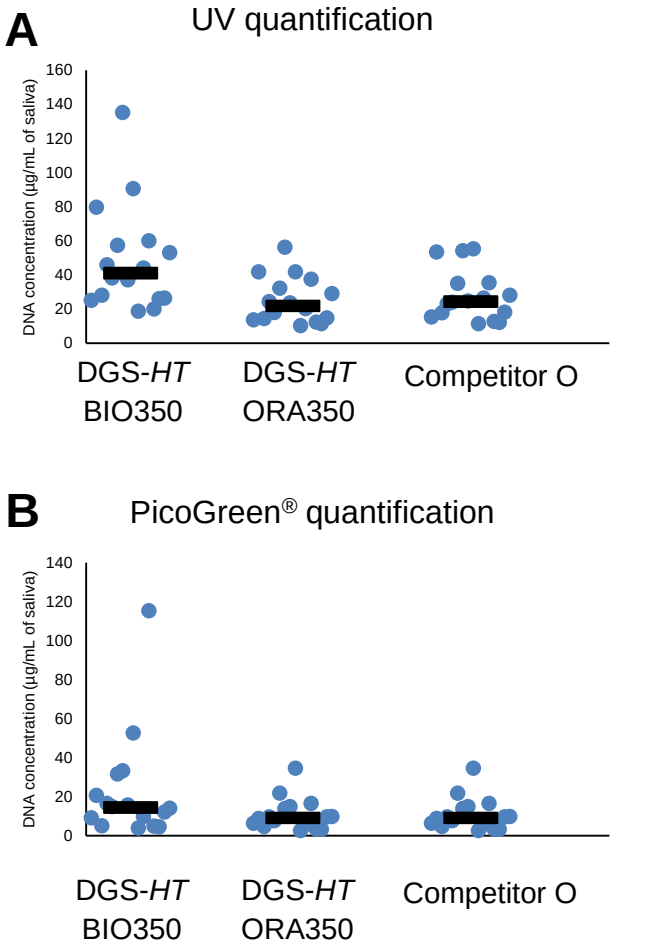

Figure 1: Yields of DNA isolated from saliva using DNAgard® Saliva HT or Competitor O. *Saliva samples from 16 donors were mixed with stabilizers and DNA was purified from each donor in triplicate using the QiaSymphony® SP. DNA concentrations were determined using UV (A) and PicoGreen (B) measurements. Black bars indicate median yields. Methods used to purify DNAgard® Saliva HT samples are specified in the x-axis titles.*

Collection and Purification Method	Median DNA yield (µg/mL of saliva; UV)	Median DNA yield (µg/mL of saliva; PicoGreen)	Median DNA Purity (A_{260}/A_{280})
DNAgard® Saliva *HT* using BIO350	41.1	14.5	2.3
DNAgard® Saliva *HT* using ORA350	21.9	9.2	2.4
Competitor O	24.4	12.5	2.3

Table 1: *Summary of DNA yield and purity results using DNAgard® Saliva HT or Competitor O following purification of samples.*

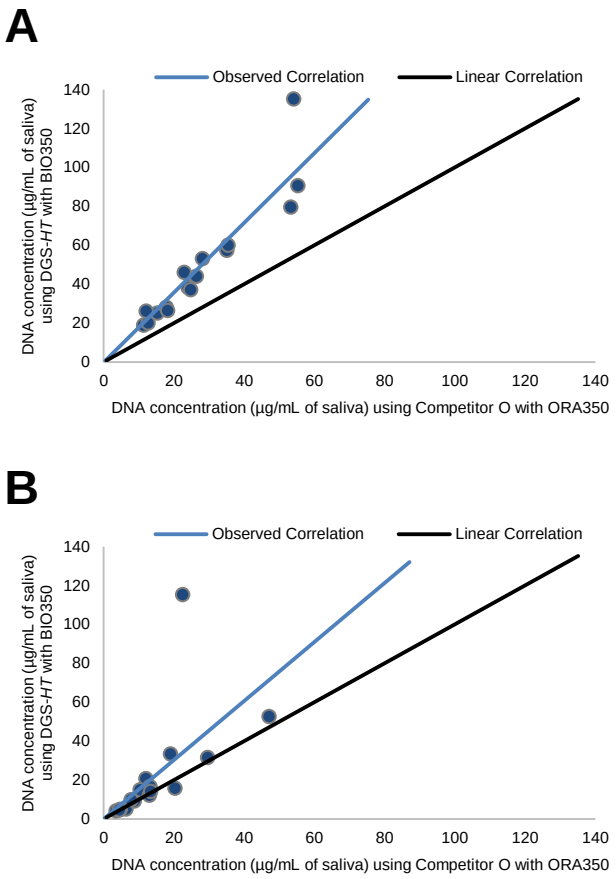

Figure 2: Comparison of sample yields. *UV (A) or PicoGreen (B) concentration readings from DNAgard Saliva HT samples and Competitor O samples that were purified using the BIO350 and ORA350 protocols, respectively. Results were plotted to compare the observed correlations (blue) versus a potential linear correlation (black).*

SUMMARY

Samples purified after storage in DNAgard® Saliva *HT* using the QiaSymphony® SP with the BIO350 protocol contain high purity DNA with yields greater than samples collected in Competitor O's stabilizer using the ORA350 protocol (Figures 1 and 2, Table 1). The results indicate that the ORA350 protocol should not be used to purify DNA from saliva samples collected using DNAgard® Saliva *HT* (Figure 1, Table 1).

Combined with the use of upstream liquid handling systems to remove samples directly from the DNAgard® Saliva *HT* tubes, users now have the tools needed to rapidly process salivary DNA samples in high throughput without the need for extra decapping steps or the errors encountered with 1D barcode readers.

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