DNA Yield is Proportional to Saliva Volume

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Introduction

In a population study, not all donors may deliver the 2.0 mL of saliva requested by the Oragene™ DNA Self-Collection Kit. The following experiments were designed to test whether DNA yield is proportional to the volume of saliva delivered into the kit.

Materials and Methods

Experiment 1

Ten donors delivered four saliva samples of 0.5 mL each sequentially into four tubes (2.0 mL total volume of saliva). DNA was extracted from each of the four tubes (1st, 2nd, 3rd and 4th) according to the Oragene purification protocol.

Experiment 2

Ten donors delivered 0.5 mL of saliva and 2.0 mL of saliva into two separate Oragene kits. DNA was extracted from each of the two samples according to the Oragene purification protocol.

DNA analysis

A 5 µL aliquot was taken from each of the samples and quantified for its DNA content using the standard DNA Genotek F/D Fluorescence Assay using SYBR Green. Quantification was performed in duplicate.

Results

For Experiment 1, the percentage of DNA in each of the 0.5 mL fractions is shown in Figure 1. The mean, median, and standard deviation of the DNA percentages are shown in Table 1. On average, the 1st, 2nd, 3rd and 4th 0.5-mL-fractions each had an equal percentage of DNA (i.e. about 25%).

For Experiment 2, the DNA yield from 0.5 mL of saliva was compared to 2.0 mL saliva from the same donor (Figure 2). The mean, median, and standard deviation of DNA percentages are shown in Table 1. Similar to the results from Experiment 1, the DNA yield from 0.5 mL of saliva was proportionately less than the yield from 2.0 mL of saliva (i.e. about 25%).

Discussion and Conclusions

This study demonstrates that DNA yield is proportional to the amount of saliva. Less than 2.0 mL of saliva results in proportionately less DNA yield.

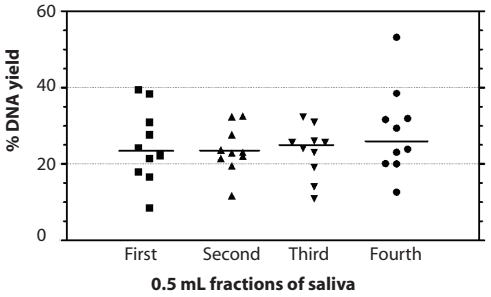

Figure 1. Percentage of DNA yield in sequential fractions of saliva.

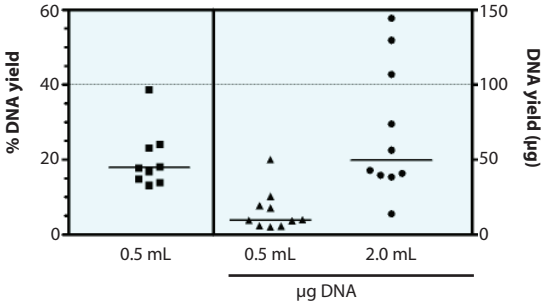

Figure 2. Percentage and absolute amounts of DNA yield from 0.5 mL and 2.0 mL of saliva.

	Experiment 1		Experiment 2	
	Median% (CI)	Mean% (±SE)	Median% (CI)	Mean% (±SE)
1st 0.5 mL	23.2 (17.8-31.6)	24.7 (3.1)	17.9 (12.8-36.5)	24.7 (5.2)
2nd 0.5 mL	23.0 (19.3-28.1)	23.7 (2.0)		
3rd 0.5 mL	24.8 (18.3-28.0)	23.1 (2.2)		
4th 0.5 mL	26.7 (20.2-36.6)	28.4 (3.62)		

Table 1. Median, mean, and standard deviation of DNA yield.

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