LACTOSE | Milk and derivatives

CDR Kits codes: 300010 – 300015

DEFINITION AND SCOPE OF THE TEST

Lactose is a reducing sugar, which is present in milk in concentrations ranging from 4.5 to 5 g/100gr. The lactose molecule is a disaccharide composed of one glucose and one galactose sub-units, and is indispensable for many fermentation processes that take place within milk.
The reduced secretion of the lactase enzyme in human beings is associated with an intolerance to lactose, and, accordingly, to milk and its derivative products.

IMPORTANT INFORMATION

The test is suitable for use on lactose free products, where a part or all the lactose has been broken down to glucose and galactose by the lactase enzyme, it is also suitable for products where lactose is normally present. It is possible to perform a lactose recovery assay on samples that are lactose free. It is possible to obtain reliable results if the samples have been diluted, altered, or mixed with different products.

TEST PRINCIPLE

Lactose is split in glucose and galactose.
Glucose reacts with a phenolic compound through an enzymatic reaction, with peroxidase, and forms a pink coloured complex. The absorbance of the complex is read at 505 nm, and the value is directly proportional to the concentration of lactose in the sample.

COMPOSITION OF THE KIT AND REAGENTS

Reagent test kit *300015, suitable for 100 tests, contains: 10 x reagent test kit *300010.
Reagent test kit *300010, suitable for 10 tests, contains:

- R1: package with 10 pre-filled cuvettes with 1 mL of buffer.
- R1a: bottle with 1 mL of enzymatic solution.
- R2: bottle with 0.5 mL of starter reagent.

For information on the hazards associated with reagents, consult the product's safety data sheet.
Storage: reagents are stable up to the expiry date. Store at **2-8°C.**
Shelf-life: at least 12 months.

PROCESSING – SAMPLE VOLUME – MEASURING RANGE

Milk: Dilute 1 part of milk + 10 parts of water. E.g. take 100 uL of milk and add it to 1mL of distilled water.

Cheese, yogurt, cream, margarine and butter: weigh 10 grams of sample and add 100 mL of distilled water. Mix in a Stomacher for about 3 minutes. Take the filtered solution to test.

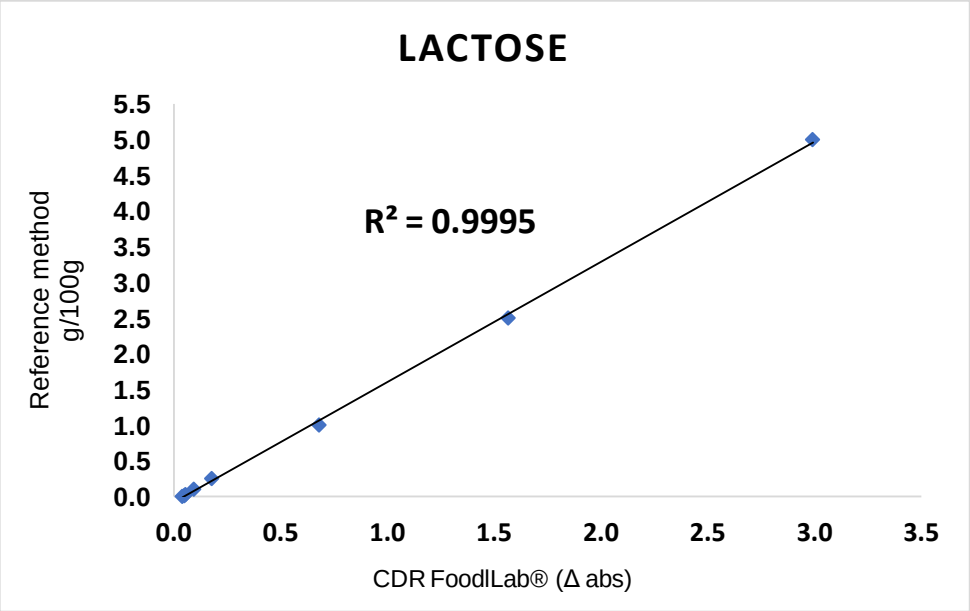
Bakery products: grind 10 grams of product and add 100mL of distilled water. Mix it for 5 minutes and centrifuge it at 5000 rpm for 5 minutes. Collect the supernatant and perform the analysis

Test	Measuring range (g/100g)	Sample volume	Resolution (g/100g)	Repeatability (g/100g)
Lactose	0.01 – 2.00	**10 µL diluted**	0.01	0.05
	1.50 – 5.50	**5 µL diluted**		

For *in – vitro* use only

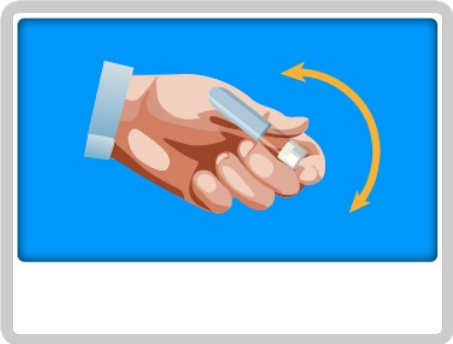
CALIBRATION CURVE

The calibration curve was performed with lactose standard solutions.

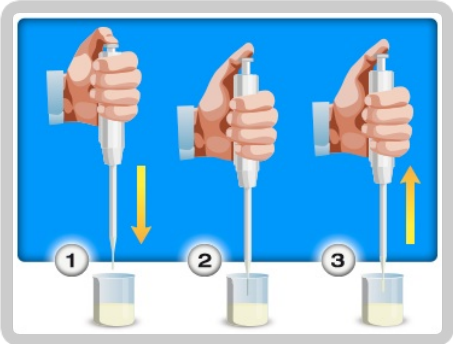


PROCEDURE

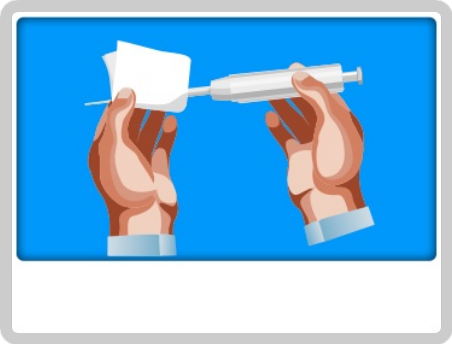
1. Dilute the sample to 1+10. For example, 100 µL homogenized milk diluted in 1 mL distilled water.



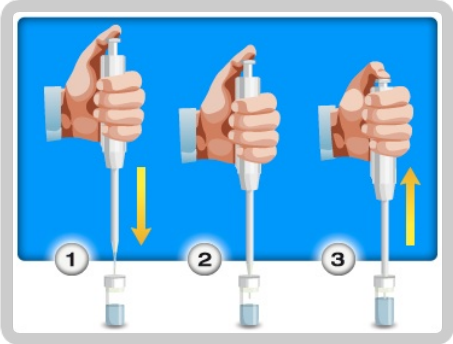
2. Homogenize the sample before collection.



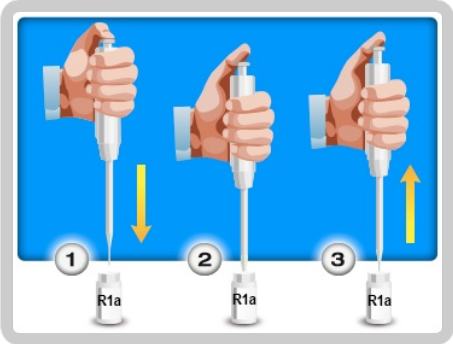
3. Withdraw the sample with the pipette 2-3 times and release it on blotting paper before collecting it for the test. Then collect 5 µL of sample.



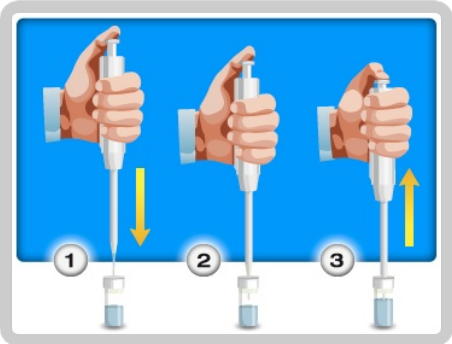
4. Carefully clean the outside of the pipette tip with blotting paper, avoiding contact between the extremity of the tip and the paper.



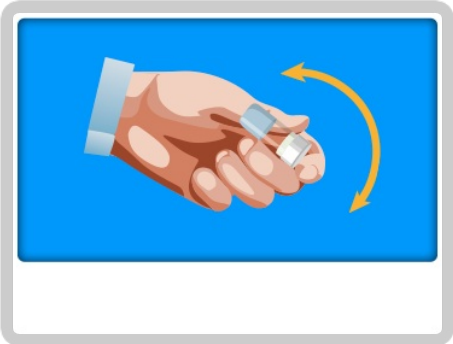
5. Place the sample in the cuvette. Keeping the tip immersed in reagent, press and release the piston of the pipette several times.



6. Collect 50 µL of R1a with a pipette.

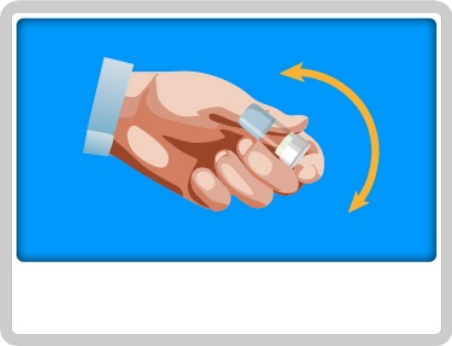


7. Add 50 µL of R1a to the cuvette containing reagent R1 without touching the tip in the liquid. In case of contamination, replace the tip.



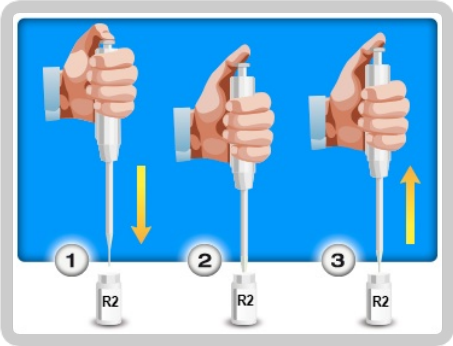
8. Gently shake the cuvette 2-3 times.

9. Place the cuvette in one of the incubation cells and start the timer by pressing the timer icon.

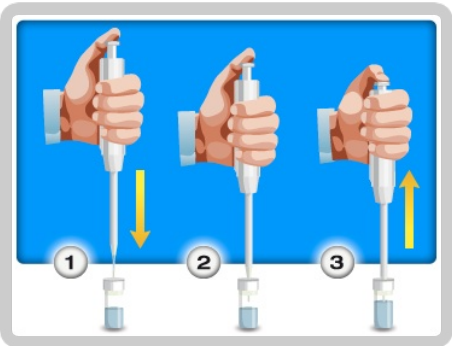


10. Gently shake the cuvette 2-3 times.

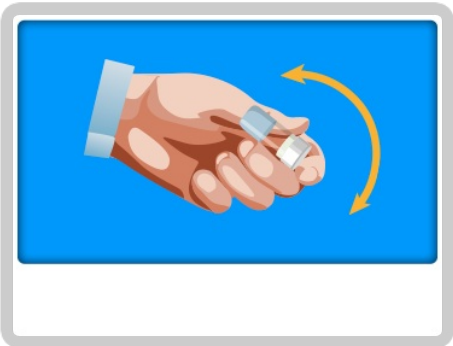
11. Select the cuvette to be read from the display. Place the cuvette in the cell marked with the blue light and press READ.



12. Collect 15 µL of R2 with the pipette.



13. Add 15 µL of R2 to the cuvette without touching the tip in the liquid, R1 + R1a + sample. In case of contamination, replace the tip.



14. Gently shake the cuvette 2-3 times.

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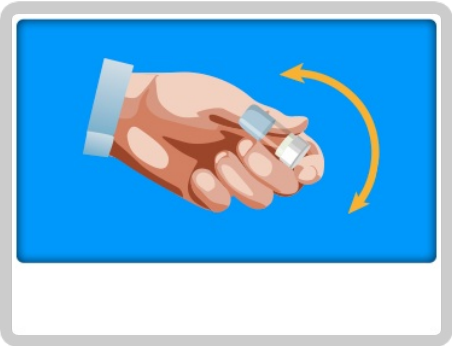
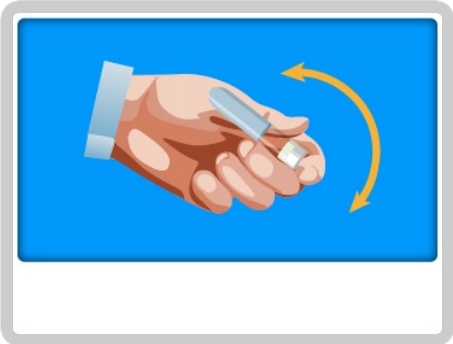


16. Gently shake the cuvette 2-3 times.

17. Place the cuvette in the cell marked with the blue light and press READ to perform the photometric reading.

PROCEDURE

1. Dilute the sample to 1+10. For example, 100 µL homogenized milk diluted in 1 mL distilled water.



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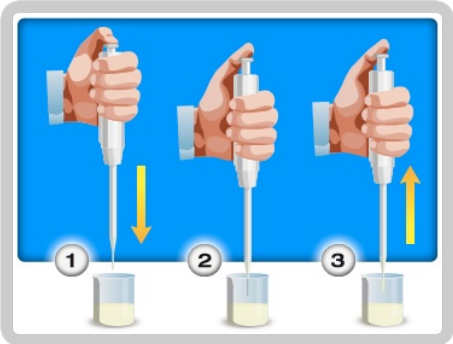
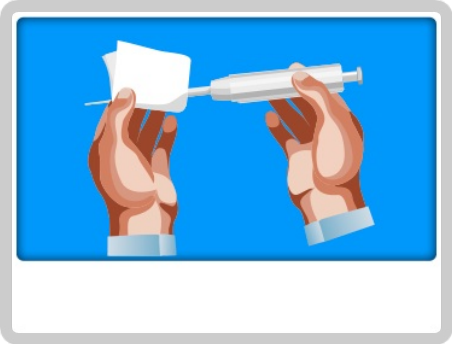
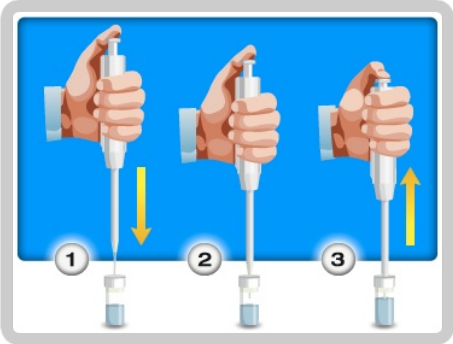


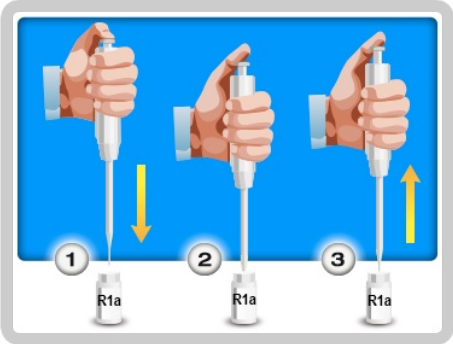
3. Collect 10 µL of diluted sample with a pipette. Use a new tip for each test to prevent contamination from previous samples.



4. Carefully clean the outside of the pipette tip with blotting paper, avoiding contact between the extremity of the tip and the paper.



5. Place the sample in the cuvette. Keeping the tip immersed in reagent, press and release the piston of the pipette several times.



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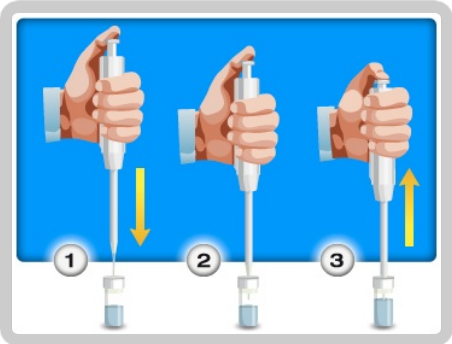

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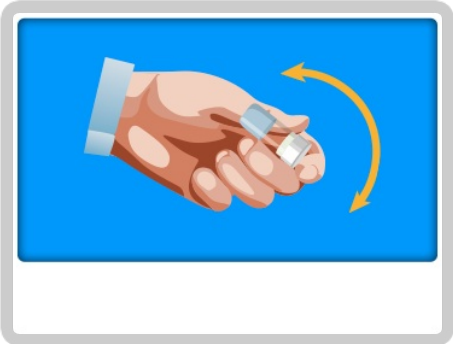

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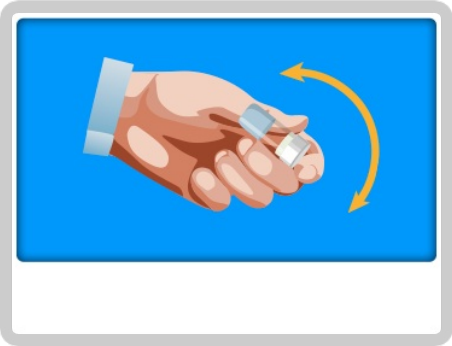

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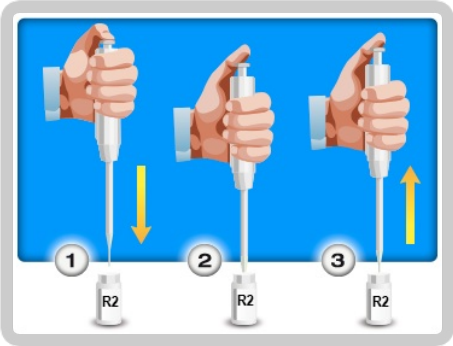

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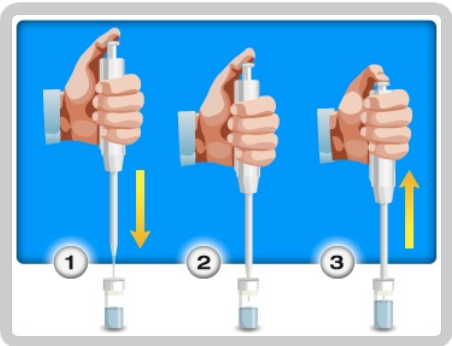

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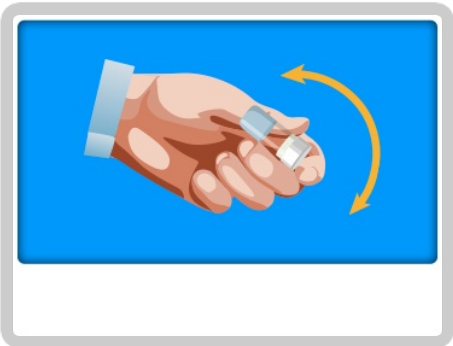

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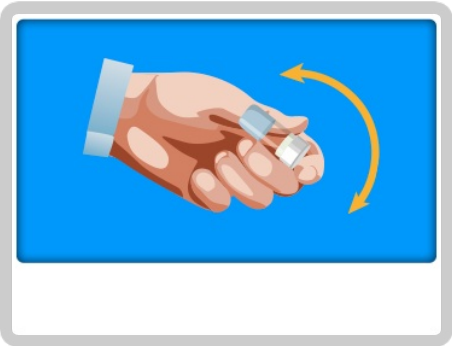

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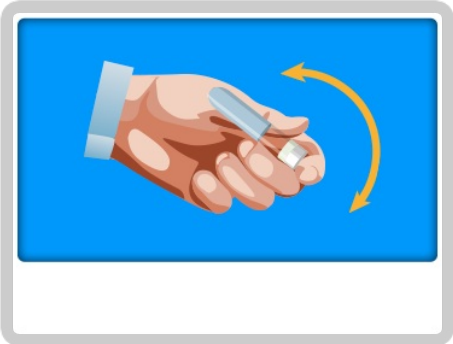

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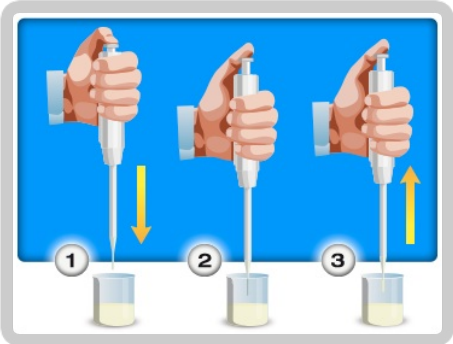

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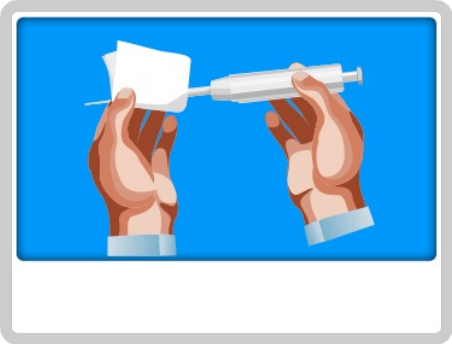

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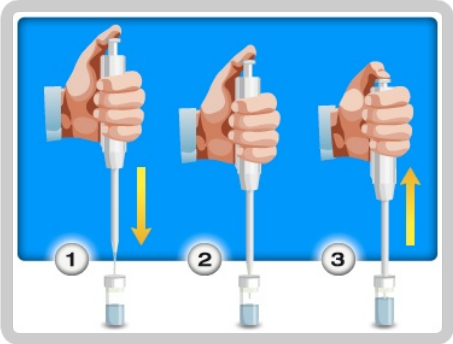

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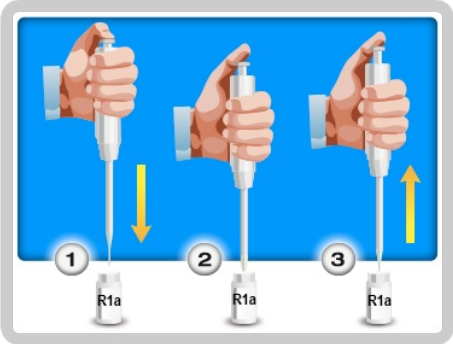
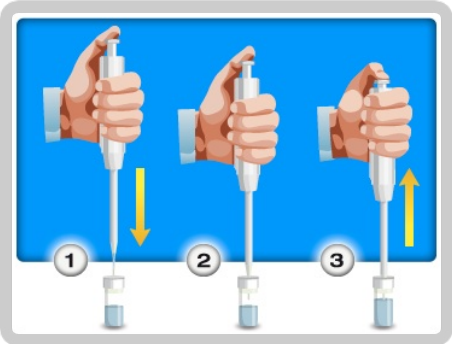
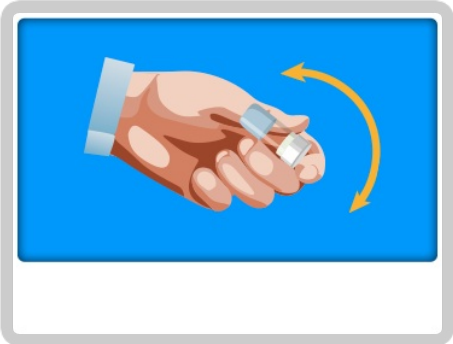


6. Collect 50 µL of R1a with a pipette.



7. Add 50 µL of R1a to the cuvette containing reagent R1 without touching the tip in the liquid. In case of contamination, replace the tip.



8. Gently shake the cuvette 2-3 times.

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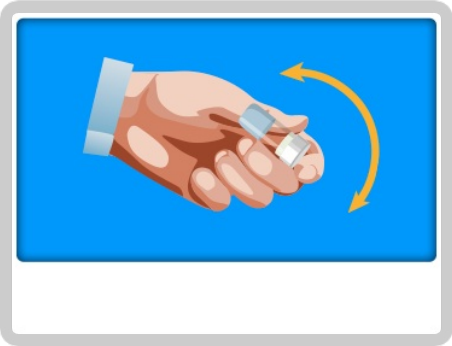

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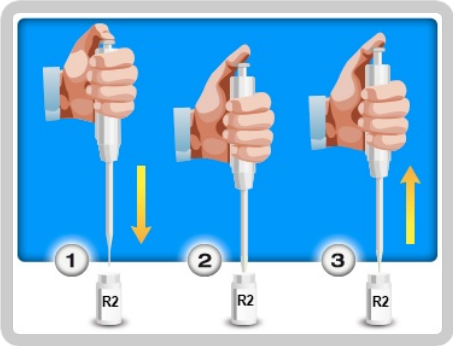
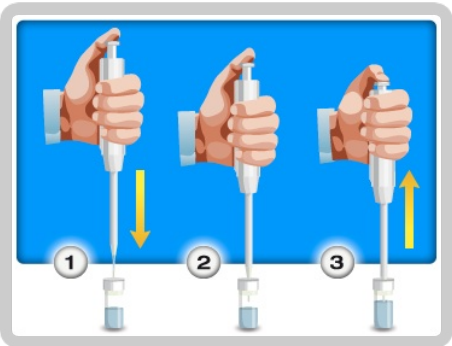
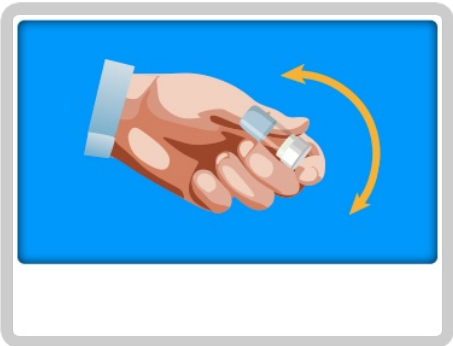


12. Collect 15 µL of R2 with the pipette.



13. Add 15 µL of R2 to the cuvette without touching the tip in the liquid, R1 + R1a + sample. In case of contamination, replace the tip.



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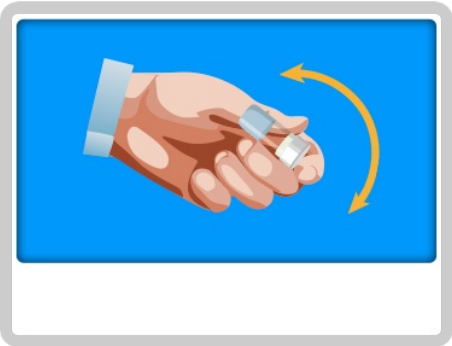

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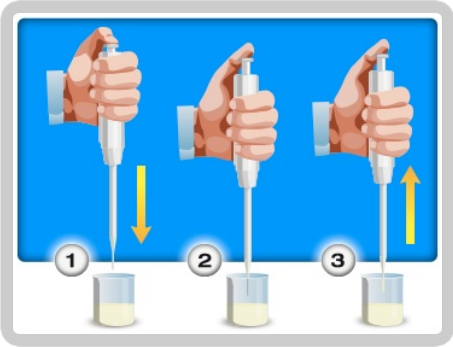
17. Place the cuvette in the cell marked with the blue light and press READ to perform the photometric reading.

PROCEDURE

1. Grind 10 grams of product and add 100mL of distilled water. Mix it for 5 minutes and centrifuge it at 5000 rpm for 5 minutes. Collect the supernatant and perform the analysis.



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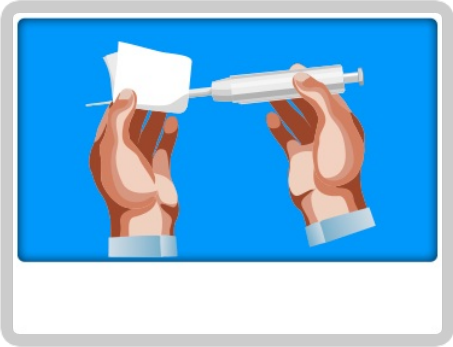
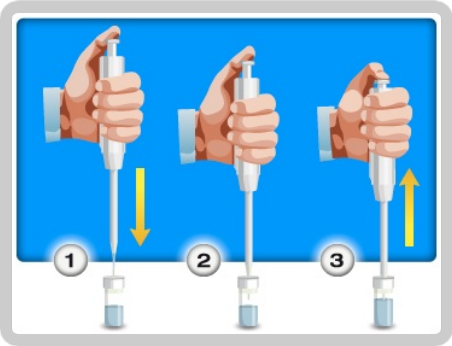


3. Carefully clean the outside of the pipette tip with blotting paper, avoiding contact between the extremity of the tip and the paper.



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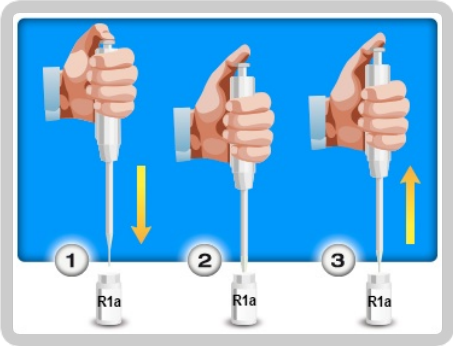

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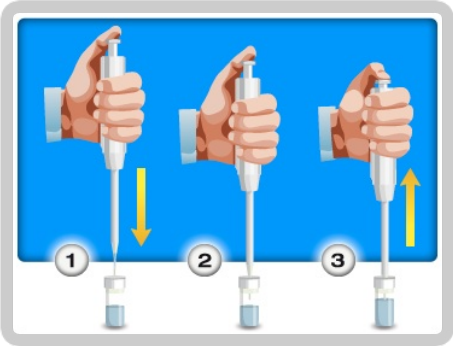

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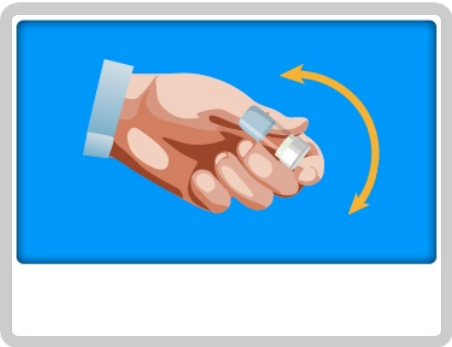

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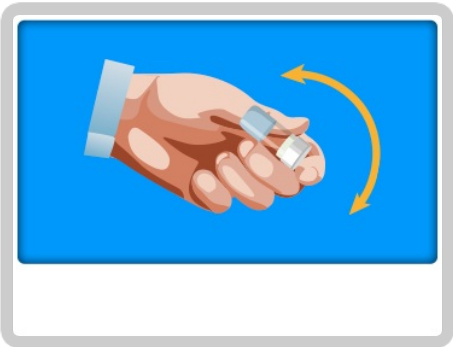

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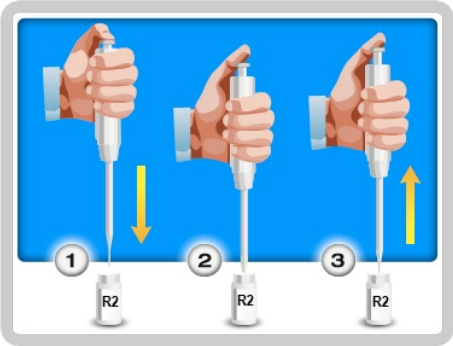
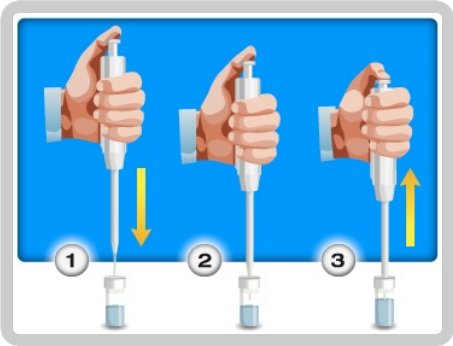
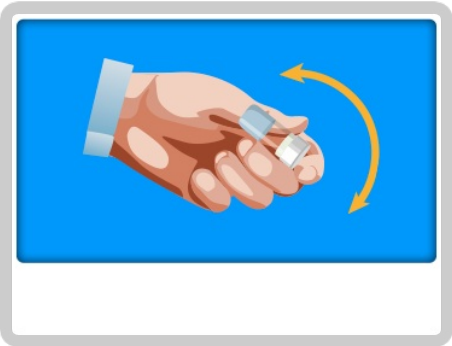


11. Collect 15 µL of R2 with the pipette.

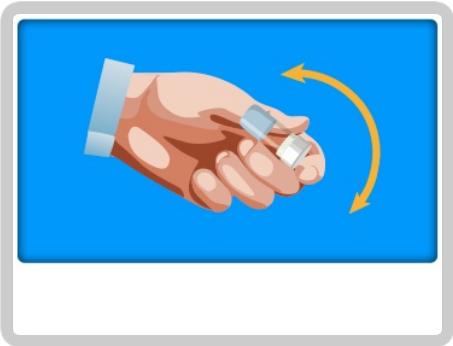


12. Add 15 µL of R2 to the cuvette without touching the tip in the liquid, R1 + R1a + sample. In case of contamination, replace the tip.



13. Gently shake the cuvette 2-3 times.

14. Place the cuvette in one of the incubation cells and start the timer by pressing the timer icon.



15. Gently shake the cuvette 2-3 times.

16. Place the cuvette in the cell marked with the blue light and press READ to perform the photometric reading.