

XYLOSE

Colorimetric determination with Phloroglucinol on serum, plasma, blood and urine

60 tests

REF CM12-60T

PRINCIPLE

In an acid medium, phloroglucinol forms a red colored complex with pentoses. The color intensity is directly proportional to the concentration of xylose present in the sample.

REAGENTS

Kit components

REAGENT 1 (powder) Phloroglucinol	REF CM12-60T CM12-60TR1	Quantity 10 vials
(* REAGENT 2) Acetic acid	CM12-60TR2	2 x 95 ml
(* REAGENT 3) Hydrochloric acid	CM12-60TR3	1 x 20 ml
STANDARD (Std) D (+) xylose 50 mg/dl	CM12-60TS	1 x 5 ml

STABILITY: stored at room temperature, tightly closed and away from light, reagents are stable up to the expiration date on the label.

PREPARATION OF THE CHROMOGENOUS REAGENT

INTERMEDIATE REAGENT

Pour 9.5 ml of Reagent 3 into one vial of Reagent 2. Close the vial with the cap and mix accurately, turning the vial upside down several times.

STABILITY: 6 months at 20-25°C.

CHROMOGENOUS REAGENT

Pour exactly 20 ml of intermediate Reagent into one vial of Reagent 1. Tightly close the vial and shake it gently until complete powder dissolution.

STABILITY: 4 days at 2-8°C.

XYLOSE LOAD

ADULTS: give 5 g or 25 g of D(+)-xylose dissolved in water to the patient, on an empty stomach for at least 6-8 hours. Within the next two hours, supply at least 250 ml of water for an adequate urinary flow. Keep the patient at rest for 5 hours afterwards. For reliable results, the 5-hour diuresis must be higher than 150 ml.

CHILDREN: give a 5% xylose solution in water, according to the quantities specified in the reference values table; keep the patient on an empty stomach, without any further liquid intake.

The load test on urines is reliable only if renal function is normal.

SAMPLE

Serum or plasma collected 1 or 2 hours after the D (+)-xylose intake.

Urine of 5 hours following the D(+)-xylose intake.

Mix the 5-hour urine accurately, measure the volume, centrifuge a part of it and dilute it 1:100 with distilled water.

MANUAL ASSAY PROCEDURE

Wavelength:	555 nm (550 - 560)
Temperature:	hot bain-marie
Optical path:	1 cm
Reading:	against blank reagent
Sample blank:	use any normal serum
Method:	colorimetric endpoint
Linearity:	200 mg/dl
Sample/Reagent:	1/150

PROCEDURE WITH SERUM OR PLASMA

Pipette into pirez tubes labeled as follows:

B/S: blank sample, S: sample, B/R: blank reagent, Std: standard:

	B/S	S	B/R	Std
Chromogenous reagent	3000 µl	3000 µl	3000 µl	3000 µl
Serum	20 µl	---	---	---
Sample	---	20 µl	---	---
Distilled water	---	---	20 µl	---
Standard	---	---	---	20 µl

Mix well and dip the tubes in a hot bain-marie for exactly 4 minutes.

Cool under running water and mix.

Read the absorbances of the blank sample (Asb), the sample (As) and the standard (Astd) at 555 nm against the blank reagent.

PROCEDURE WITH URINE

Use urine diluted 1:100 with distilled water.

Pipette into pirez glass tubes, labeled as follows:

B/R: blank reagent, S: sample, Std: standard

	B/R	S	Std
Chromogenous reagent	3000 µl	3000 µl	3000 µl
Distilled water	20 µl	---	---
Sample	---	20 µl	---
Standard	---	---	20 µl

Mix well and dip the tubes in a hot bain-marie for exactly 4 minutes.

Cool under running water and mix.

Read the absorbances of the sample (As) and the standard (Astd) at 555 nm against the blank reagent.

CALCULATION

SERUM OR PLASMA

$[(As - Asb) / Ast] \times 50 =$ xylose in mg/ sample in dl

URINE

g of excreted xylose in 5 hours = (As/Ast) x 5 x urine volume in dl

% of excretion xylose = g of excreted xylose / g of xylose administration

REFERENCE VALUES

CHILDREN			
Xylose load	5 g	14.5 g/m ² of body surface up to 25 g maximum	0.5 g/Kg of body weight up to 25 g maximum
Serum/ 1h (mg/dl)	>20	normal >25 celiac disease 15 ± 8 intract.diarrhea 12 ± 8 allergy to cow milk 16 ± 10	---
Serum/ 2h (mg/dl)	---	---	30-40 <10 pathologic
Urine/ 5h (% excretion)	---	---	< 6 months 11-30 6-12 months 20-32 1-3 years 20-42 3-10 years 25-45 >10 years 25-50

ADULTS		
Xylose load	5 g	25 g
Serum/ 2h (mg/dl)	---	> 33
Urine/ 5h (% excretion)	30 - 42	> 16

PERFORMANCE CHARACTERISTICS

Linearity: up to 200 mg/dl.

For higher values, dilute the sample with saline solution, repeat the determination and multiply the result by the dilution factor.

Within-run precision:

urine sample	Level 1	Level 2
Mean (mg/dl)	18.00	69.5
DS	0.160	0.715
CV %	0.89	1.03

Between-run precision:

urine sample	Level 1	Level 2
Mean (mg/dl)	17.55	71.8
DS	0.180	1.25
CV %	1.02	1.74

Correlation: FAR kit for xylose determination shows a correlation coefficient of 0.98 in comparison to another kit available on the market.

DISPOSAL

The product must be used for professional assay only. Dispose of the product according to national/international laws.

WARNINGS



REAGENT 1 WARNING: Causes skin irritation (H315). May cause an allergic skin reaction (H317). Causes severe eyes irritation (H319). May cause respiratory irritation (H335).



REAGENT 2 WARNING: Flammable liquid and vapor (H226). Causes severe skin burns and eyes damage (H314).



REAGENT 3 WARNING: Causes severe skin burns and eyes damage (H314). May cause respiratory irritation (H335).

NOTES

- Reaction volumes can be proportionally changed.
- Any normal serum is suitable for the blank sample. For more precise results, use the patient serum obtained before the xylose load as blank sample.

REFERENCES

- J.H. Roe et E.W. Rice, J. Bio. Chem., 173, 507-512 (1948)
- T.J. Eberts et al., Clin. Chem., 25, 1440 (1979)
- J.P. Bust et al., J. of Pediatrics, 729 (May 1978)



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KEY SYMBOLS

IVD	In Vitro diagnostic medical device
LOT	batch number
REF	catalog number
	temperature limits
	use by
	caution
	read instructions for use