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The Science of Lysing

Maintaining yeast viability during tissue homogenization with Minilys

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CONTEXT

Fungi of medical interest in recent years have become primarily responsible for opportunist parasitic diseases, mainly because of the strong increase of immuno-depressed patients. Fungal infections pose a challenge to health professionals who have to face variety of new emerging pathogens, but also manage the problem of resistance to antifungal treatments. The team focus its research on yeasts of medical interest belonging to the genus *Candida.*

MATERIAL

- Minilys homogenizer.
- Precellys kits: CK28R_2mL (03961-1-007) + 2CK50 (03961-1-106); CK28_7mL (03961-1-302) + 4CK50 (03961-1-106);
-Samples: Duplicate of whole tissues of mice (Lung, heart, liver, brain, kidney and spleen).
- Buffer: 1mL water in 2 mL vial or 2mL water in 7mL.
- Candida culture: 1.107 CFU; 100µL in 2mL vial or 200µL in 7 mL vial.

PROTOCOL

- Minilys setting: 5000 rpm.

	Lung	Heart	Liver	Brain	Kidney	Spleen
	[0,63g / 0,66g]	[0,110g / 0,02g]	[1,18g / 1,10g]	[0,35g / 0,41g]	[0,43g / 0,45g]	[0,33g / 0,22g]
2mL	2x60s	2x30s				
7mL			2x15s	10s	30s	30s

- Analysis: Assessment of *Candida* concentration (CFU/mL) by cultural method after spreading 100µL of a 100 dilution in YPD plates.

RESULTS

Assessment of yeast concentration was performed on the homogenate samples (Results not shown).

Effect of homogenization on the viability of yeast cells was performed on a pure *Candida* culture at 1.10^7 CFU. Following Minilys homogenization, either performed in 7 mL or 2mL vial, 100 % of yeast cells survived after the maximum of time set independently the tissue. It's important to limit the temperature rise during long homogenization (>40sec.) by keeping the samples in ice during a few minutes between 40s cycles (Fig.1).

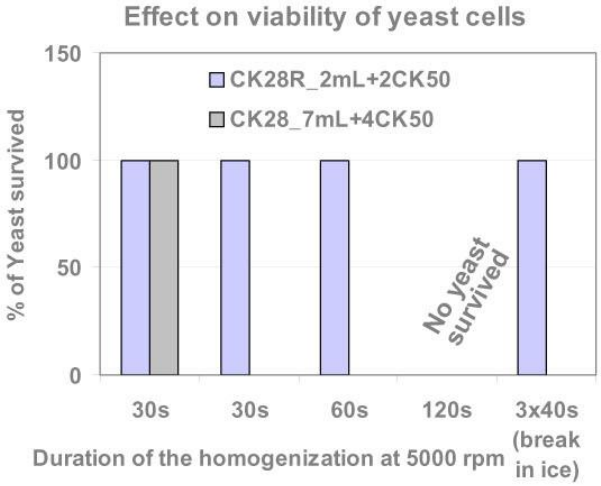

Figure 1: Effect of tissue homogenization on the viability of Candida. Data represents the % of yeast survived (CFU/ml) after the duration of homogenization specified.

CONCLUSION

Homogenization of whole tissues of mice (Lung, heart, liver, brain, kidney and spleen) using the **Minilys** with **Precellys lysing kits** does not affect the viability of the yeast pathogen *Candida.* The yeast viability is maintained during tissue homogenization up to 2 min limiting excessive temperature rise.

The potential to process individual samples in a short time period with no risk of cross-contamination has considerable benefits over traditional homogenization methods.

For more details, please contact precellys@bertin.fr

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