User Manual

HLP

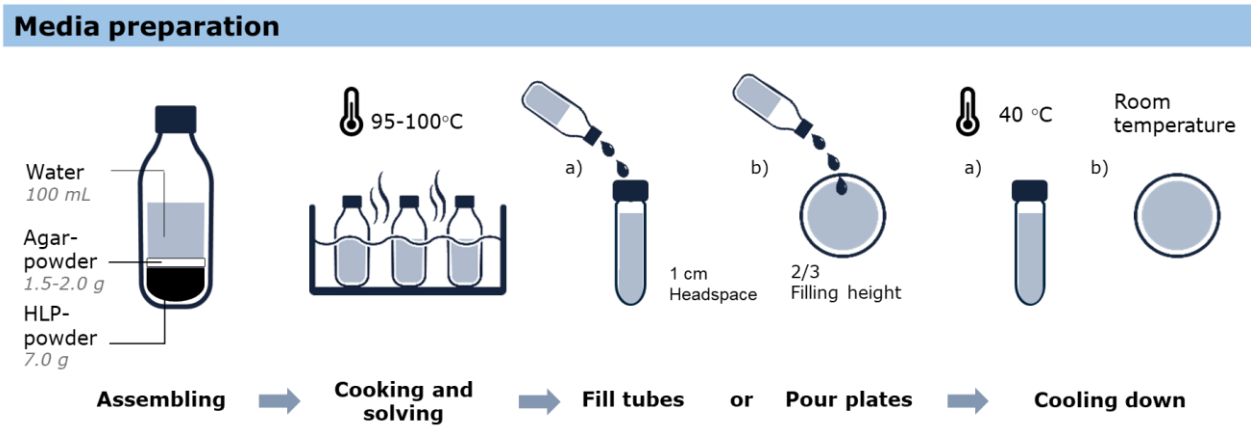
Artikel Nr. 9.23556.244

HLP (Hsu's Lactobacillus/Pediococcus Medium) is a ready-to-use powder to produce a selective HLP gel or agar (pH 5.3 ± 0,5) for the detection and quantification of the main beer spoiling bacteria in beer and brewing environment samples. Specific growth component composition promote the selective growth of *Lactobacillus* spp. and *Pediococcus* spp., while Cycloheximid inhibits the normal culture yeast. Autoclaving of the medium is not necessary.

1. Medium Preparation

Please work under sterile conditions after boiling to avoid secondary contaminations.

- Suspend 7.0 g of HPL-powder in 100 mL of water in a 500 mL flask
  Optional to prepare agar plates: addition of 1,5 – 2,0 g agar / 100 mL HLP-Medium
- Heat (e.g. in the microwave) until boiling point is achieved and media is completely dissolved, boil for another 2-3 minutes
- Inspect visually: color of hydrated and boiled media should be beige
- While it is still hot, transfer the medium into sterile tubes with a headspace of approx. 1 cm and close them well or pour the medium in Ø 9 cm sterile petri dishes to 2/3 fill level
- Let the tubes cool down to about 40 °C and let the poured plates solidify at room temperature for approx. 1 h
- For application, HPL tubes should be used directly after cooling down at 40 °C
- After cooling, tubes and plates can be stored at 4-5 °C for max. 2 weeks
- To liquefy the medium again after storage, boil the tightly closed tubes and cool them down to 40 °C before application



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2. Application

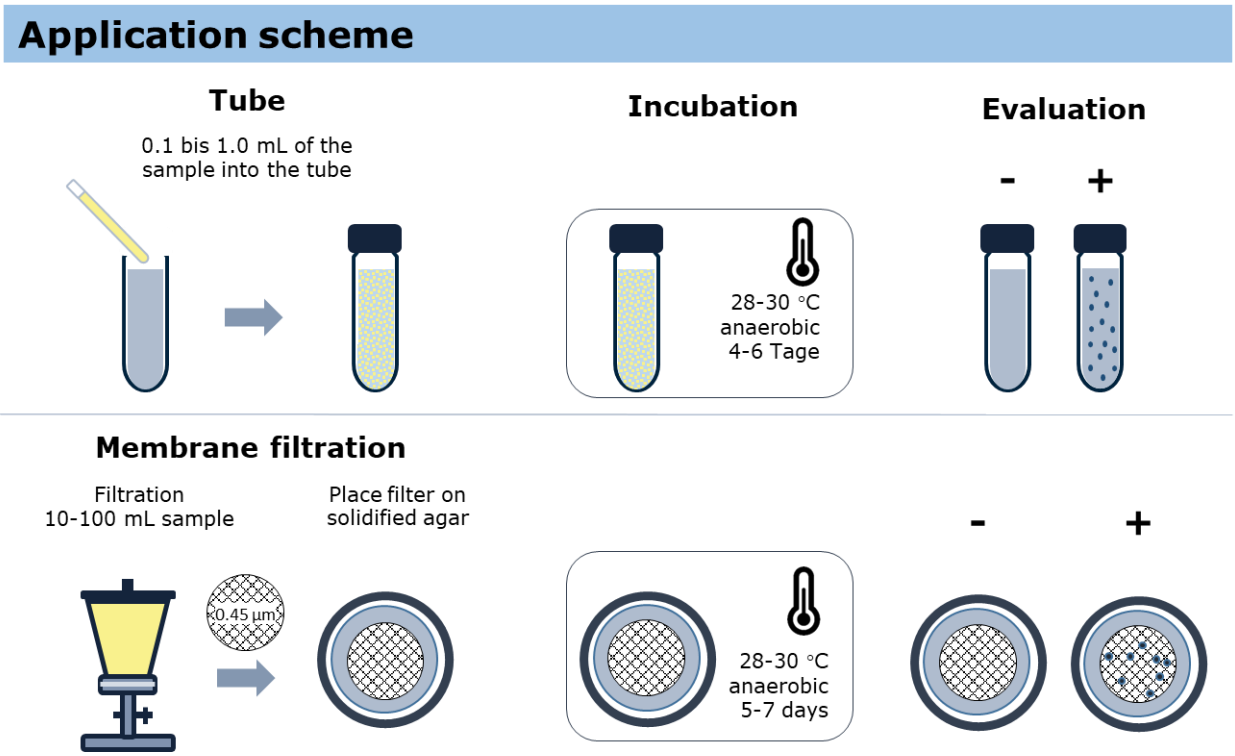
Please work under sterile conditions to avoid secondary contaminations.

2.1 HLP-tubes (Gel)

Pipette 0.1 to 1.0 mL of the sample or dilution to be analyzed directly into the HLP medium at approx. 40 °C. Close the tube and invert twice to distribute the microorganisms contained in the inoculum evenly throughout the medium.

2.2 Nutrient base (Agar)

Filter 10 to 100 mL of the filterable sample using a membrane filter (e.g. 0.45 µm pore size). Transfer the membrane filter to the surface of the solidified HLP plate while avoiding bubbles. Alternatively, a liquid sample can be spread on the plate.



2.3 Incubation

Place closed tubes or agar plates in an incubator at 28 - 30 °C for 5 - 7 days. Incubate tubes or plates anaerobic to promote the growth of lactic acid bacteria. Optionally, the medium can be covered with sterile paraffin to favor the anaerobic atmosphere.

3. Evaluation and Result Interpretation

Perform a visual interpretation of the tubes after incubation. In the table below are examples for the evaluation.

Occurring result		Evaluation
Tube with relatively large, white, inverted tear drop shaped colonies		Positive finding of most *Lactobacillus* spp.
Tube with small, white spherical / comet-like / sesame seed shaped / tear drop colonies		Positive finding of most *Pediococcus* spp.
Tube with no colonies and clear media		Negative finding

4. Product Information

4.1 Packaging and content

Package/content:	1 x 500 g powder in PE-bottle
Size:	22 cm x 22 cm x 18 cm
Weight:	4.0 kg

4.2 Storage and shelf life

Store in a dry and dark place at 4 – 8 °C. Shelf life of 1080 days (from production date).

4.3 Waste disposal

- No dangerous goods
- No hazardous material after preparation
- Please consider your local waste regulations
- Non inoculated media can be disposed of with normal laboratory waste
- Inoculated and incubated media should be sterilized for 20 min at 121 °C before disposal

4.4 Warnings and precautions

Do not overheat or freeze product. Wear protective clothing when handling hot media. This product is for use in microbiological control only and not intended for medical use. More information in SDS.

5. Quality Control

HLP was tested for functionality with the following microorganisms.

Microorganism	**Growth**
Lactobacillus brevis (BRY 406)	Large white, tear drop shaped colonies
Pediococcus damnosus (BRY 407)	Small, white, spherical colonies
Klebsiella aerogenes (BRY 408)	No growth
Saccharomyces cerevisiae (BRY 420)	No growth

6. Similar Products

Product	Item No.	Target microorganism
NBB® Agar	2.04709.782	Beer spoiling bacteria
LMDA	9.23555.244	Beer spoiling bacteria

7. References

[1] ASBC (2008): Differential Culture Media (Microbiological Control-5). 14th Edition.