**1. Prepare Culture Medium**

1.1 Solute the following components in 1 L distilled water:

Proteose Peptone No. 3 10.0 g

Beef Extract 10.0 g

Yeast Extract 5.0 g

D-Glucose 20.0 g

Polysorbate 80 1.0 g

Ammonium Citrate 2.0 g

Sodium Acetate 5.0 g

Magnesium Sulfate 0.1 g

Manganese Sulfate 0.05 g

Dipotassium Phosphate 2.0 g

pH = 5.5 ± 0.2 at 25°C

1.2 Autoclave the culture medium at 121 °C for 20 minutes.

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**2. Prepare Over Night Culture**

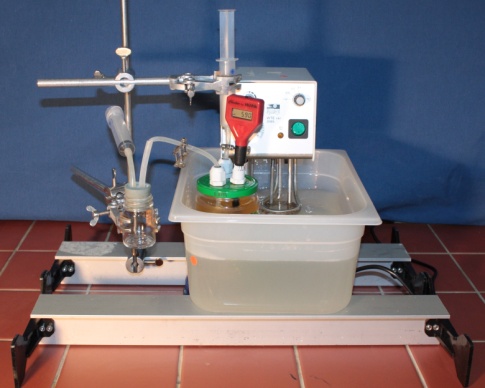
2.1 Inoculate 200 mL of the culture medium with *Lactobacillus delbrueckii or L. plantarum.*

2.2 Incubate culture at 37 °C over night until there is a visible turbidity.

**3. Prepare Fermentation**

3.1 The fermentation is carried out under the following conditions:  
- 37 °C e.g. in a water bath  
- stirring at 100 rpm  
- pH-controlled in the range of 5.0 – 6.0

3.2 Inoculate fermenter medium with overnight culture in relationship 10 : 1.  
Task 1:  
Take a probe and measure at t0 optical density at 600 nm, lactic acid- and glucose concentration at 340 nm.



**4. Fermentation**

4.1 Ferment for 3 days at 37 °C and a pH of approx. 5.5.

For neutralization of produced lactic acid  
add 2 M NaOH.

Task 2:  
Take a probe each 2 hours out of the fermenter and measure optical density, glucose- and lactic acid concentration   
during fermentation.  
  
If glucose is consumed, feed medium with  
a glucose solution of 180 g/L so that glucose concentration is 10 g/L.