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# Yeast Peptone Dextrose (YPD) medium

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Andreas Sagen[1]

[1]University of Oslo

Andreas Sagen
University of Oslo





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**Protocol status:** Working
**We use this protocol and it's working**

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## Abstract

Yeast peptone dextrose is a medium composition used to grow many common yeasts, among others *Saccharomyces cerevisiae*. Glucose is the primary carbon and energy source, while nitrogen and essential amino acids are provided by the yeast extract and peptone. It is nonselective and the addition of protein and yeast extract allows faster growth so that during exponential or log-phase growth, the cells divide every 90 minutes in *S. cerevisiae*.

## Guidelines

Follow step by step, unless stated otherwise. Equipment needed should be standard to a microbiology lab.

## Materials

Analytical scale, autoclave, bottle(s), weight vessel, LAF bench

## Protocol materials

- Dextrose **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**G7021
- Yeast Extract **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**Y0875
- Peptone **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**P5905
- Peptone **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**P5905
- Yeast Extract **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**Y0875
- Agar **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**A1296

## Troubleshooting

## Safety warnings

You can mix Dextrose from the beginning with the other compounds, and autoclave together. While this is more time efficient and easier, it is important to take into account the possibility of toxic byproducts produced by the Millard reaction when autoclaving, producing Acrylamide, a probable human carcinogen (IARC Group 2A).
Furthermore, when removing autoclaved components, be sure to take care as these can be very hot. If using antibiotics, use sufficient PPE to protect yourself, as some can be toxic to humans.

## Before start

Prepare glassware by cleaning it, and ensure that scale is sufficiently calibrated

## 100 mL Dextrose solution

1 All compounds are measured using a high precision analytical scale from powdered compounds. Each compound is measured to within 1% of the target weight. All compounds are mixed in a Duran bottle

1.1 Fill the bottle with 60 mL double-distilled water

1.2 Measure 10000 mg Dextrose

Powdered compounds:
Dextrose **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**G7021

1.3 Add powdered solids into bottle, and use a magnetic mixer with a stir bar to mix for 00:05:00 5m

1.4 Adjust pH while mixing to pH 5.8 using concentrated sodium hydroxide

1.5 Add distilled water to a total of 100 mL

1.6 Autoclave liquid at 121 °C for 00:15:00 15m

## 500 mL YPD (broth) medium

2 All compounds are measured using a high precision analytical scale from powdered compounds. Each compound is measured to within 1% of the target weight. All compounds are mixed in a Duran bottle

2.1 Fill the bottle with 300 mL double-distilled water

2.2 Measure 10000 mg Peptone and 5000 mg Yeast extract

Powdered compounds:
Peptone **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**P5905

Yeast Extract **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**Y0875

2.3 Add powdered solids into bottle, and use a magnetic mixer with a stir bar to mix for 00:05:00 5m

2.4 Adjust pH while mixing to pH 5.8 using concentrated sodium hydroxide

2.5 Autoclave liquid at 121 °C for 00:15:00 15m

2.6 In a LAF bench, add 100 mL sterile Dextrose solution

2.7 Add sterile water to a total of 500 mL

Note

Cool to 50°C and supplement with antibiotics as appropriate

## 500 mL YPD (agar) medium 15m

3 All compounds are measured using a high precision analytical scale from powdered compounds. Each compound is measured to within 1% of the target weight. All compounds are mixed in a Duran bottle

3.1 Fill the bottle with 300 mL double-distilled water

3.2 Measure 10000 mg Peptone, 5000 mg Yeast extract and 7500 mg agar

Powdered compounds:

Peptone **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**P5905

Yeast Extract **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**Y0875

Agar **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**A1296

3.3 Add powdered solids into bottle, and use a magnetic mixer with a stir bar to mix for 00:05:00 5m

3.4 Adjust pH while mixing to pH 5.8 using concentrated sodium hydroxide

3.5 Autoclave liquid at 121 °C for 00:15:00 15m

3.6 In a LAF bench, add 100 mL sterile Dextrose solution

3.7 Add sterile water to a total of 500 mL

Note

Cool to 50°C and supplement with antibiotics as appropriate

Agar can be stored, then reheated to 50°C to be poured