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SNA (Synthetic Nutrient Deficient) Agar for Identification fungi

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We use this protocol and it's working

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Abstract

SNA (Spezieller Nährstoffarmer Agar), or Synthetic Nutrient Deficient Agar, is a specialized culture medium designed for the identification and study of fungi such as *Fusarium* and *Cylindrocarpon*. This medium is nutrient-deficient, promoting specific morphological characteristics in these fungi that are critical for accurate identification. SNA is frequently used in mycological research and diagnostics, particularly in laboratories focused on plant pathology and fungal taxonomy. If the goal is to observe and document specific growth patterns, sporulation, or other morphological traits of these fungi under nutrient-limited conditions, SNA agar provides an optimal environment.

When Not to Use SNA Agar:

Isolation of Nutrient-Demanding Fungi:

- For fungi that require richer nutrient environments for growth, such as certain saprophytic or pathogenic fungi not belonging to *Fusarium* or *Cylindrocarpon*, SNA agar would not provide the necessary nutrients for their development.

Rapid Growth and Mass Production:

- If the objective is to rapidly grow and mass-produce fungal cultures for spore collection or other applications, a nutrient-rich medium such as Potato Dextrose Agar (PDA) or Sabouraud Dextrose Agar (SDA) would be more appropriate

Guidelines

- **Aseptic Technique**: Ensure that all steps, especially post-autoclaving, are conducted under aseptic conditions to prevent contamination.
- **Homogeneous Mixing**: Stir the medium well after dissolving the components and before autoclaving to ensure uniform distribution.
- **Temperature Control**: Allow the medium to cool to approximately 50°C before pouring to prevent the formation of condensation in Petri dishes and to maintain the sterility of the medium.

Materials

- 1.0 g of **KH2PO4** (Potassium dihydrogen phosphate)
- 1.0 g of **KNO3** (Potassium nitrate)
- 0.5 g of **MgSO4·7H2O** (Magnesium sulfate heptahydrate)
- 0.5 g of **KCl** (Potassium chloride)
- 0.2 g of **Glucose**
- 0.2 g of **Sucrose**
- 20 g of **Agar**
- Distilled water (1 liter)
- Sterile Petri dishes

Equipment

Adventurer™ Analytical Balances	NAME
Analytical balance	TYPE
Ohaus	BRAND
30100600	SKU
https://www.fishersci.com/shop/products/ohaus-adventurer-analytical-balances-7/p-4918285	LINK

Equipment

8-Liter Autoclave

NAME

Portable Stainless Steel Pressure Steam Sterilizer

TYPE

China

BRAND

XFS-D-8L

SKU

https://www.dentalplaza.co.uk/Dentist-8L-Portable-Steam-Autoclave-Sterilizer-168696-dental.html

LINK

SPECIFICATIONS

Voltage: 220 V (AC)
Power: 1.2 kW
Working Medium: Steam
Design Pressure: 0.17 MPa
Working Temperature: 129 °C
Frequency: 50 Hz
Useful Life: 5 Years
Delivery Date: 3. Oct, 2019

JPG

Equipment

Laminar Flow Hood

NAME

Benchtop workstation

TYPE

Envirco

BRAND

TT4830

SKU

Troubleshooting

Safety warnings

Chemical Handling:

- Handle all chemicals, especially potassium nitrate (KNO3) and magnesium sulfate heptahydrate (MgSO4·7H2O), with care. Wear appropriate personal protective equipment (PPE), including gloves, lab coats, and eye protection, to avoid skin contact, inhalation, or ingestion.
- Ensure that potassium nitrate, an oxidizing agent, is kept away from flammable materials and heat sources to prevent combustion or explosion risks.

Sterilization Safety:

- When using the autoclave, ensure that the lid is securely closed and that the pressure has fully released before attempting to open the autoclave to avoid burns from steam or hot liquids.
- Handle the sterilized medium with heat-resistant gloves to prevent burns.

Aseptic Technique:

- Maintain a sterile environment when handling the medium post-autoclaving to prevent contamination. Work under a laminar flow hood if possible and always sterilize tools and containers before use.

Temperature Control:

- Allow the medium to cool to around 50°C before handling or pouring it into Petri dishes. Pouring the medium while it's too hot can cause burns and may also result in condensation forming inside the Petri dishes, which can affect the medium's integrity.

Glassware Handling:

- When working with hot glassware, such as the Erlenmeyer flask after autoclaving, use heat-resistant gloves to avoid burns. Place hot glassware on a heat-resistant surface and avoid rapid temperature changes to prevent breakage.

Before start

Before starting the preparation of SNA medium, ensure that all necessary materials and equipment are available and properly sterilized. Measure out all the required chemical components accurately.

Dissolve SNA Components:

1 In a 1-liter Erlenmeyer flask, dissolve the following components in 1 liter of distilled water (dH2O):

- 1 g of **KH2PO4** (Potassium dihydrogen phosphate)
- 1 g of **KNO3** (Potassium nitrate)
- 0.5 g of **MgSO4·7H2O** (Magnesium sulfate heptahydrate)
- 0.5 g of **KCl** (Potassium chloride)
- 0.2 g of **Glucose**
- 0.2 µL of **Sucrose**
- 20 g of **Agar**

Sterilize:

2
- Autoclave the solution at 121°C for 20 minutes to sterilize the medium.
- After autoclaving, allow the medium to cool to around 50°C before pouring it into Petri dishes.

Pour into Petri Dishes:

3
- Work aseptically to pour the medium into sterile Petri dishes.
- Allow the agar to solidify at room temperature before use.

Protocol references

Leslie, J.F., & Summerell, B.A. (2006). *The Fusarium Laboratory Manual*. Blackwell Publishing, Ames, IA.