# Rice Extract Agar

## Intended Use

Rice Extract Agar is used for promotion of chlamydospore formation by *Candida albicans* and *C. stellatoidea* as a means of differentiating them from other *Candida* species.

## Summary and Explanation

Rice Extract Agar was developed by Taschdjian to aid in the identification of chlamydospore-producing species of *Candida* so as to differentiate these species from others within the *Candida* genus.[1] Later, Taschdjian recommended inclusion of polysorbate 80 and the use of a lower concentration of medium (13 g/L) to enhance the formation of chlamydospores.[2]

Rice Extract Agar with 2% dextrose may be used to promote chromogenesis and, therefore, is helpful in distinguishing *Trichophyton rubrum* from *T. mentagrophytes*.

## Principles of the Procedure

The rice extract provides the nutrients required for the growth of *Candida* species. The addition of polysorbate 80 stimulates chlamydospore formation due to its content of oleic acids. Chlamydospore production is also favored by the use of a lower concentration, 13 g/L, although the medium can be prepared at a higher concentration (25 g/L).

The addition of 2% dextrose enhances chromogenesis in *T. rubrum*.

## Formula

**BBL™ Rice Extract Agar**

Approximate Formula* Per Liter

| | | |
|---|---|---|
| White Rice, Extract from (solids) | 5.0 | g |
| Agar | 20.0 | g |

**Adjusted and/or supplemented as required to meet performance criteria.*

## Directions for Preparation from Dehydrated Product

1. Suspend 25 g of the powder in 1 L of purified water. To promote chlamydospore formation, suspend 13 g of the powder in 1 L of purified water.
2. Add 10 mL polysorbate 80. Mix until a uniform suspension is obtained.
3. Heat with frequent agitation and boil for 1 minute to completely dissolve the powder.
4. Dispense and autoclave at 121°C for 15 minutes.
5. Test samples of the finished product for performance using stable, typical control cultures.

## Procedure

1. For use in the detection of chlamydospore formation. Inoculate the culture by cutting slits into the agar with an inoculating needle. Cover the inoculated slits with sterile coverslips. Seal the plates to avoid moisture loss and incubate at room temperature for 24-48 hours and up to 14 days before discarding as negative.

## User Quality Control

### *Identity Specifications*

**BBL™ Rice Extract Agar**

| | |
|---|---|
| Dehydrated Appearance: | Fine, homogeneous, free of extraneous material. |
| Solution: | 1.3% solution, soluble in purified water upon boiling. Solution is pale, yellow to tan, moderately hazy to hazy. |
| Prepared Appearance: | Pale, yellow to tan, moderately hazy to hazy. |
| Reaction of 1.3% Solution at 25°C: | pH 6.6 ± 0.2 |

### *Cultural Response*

**BBL™ Rice Extract Agar**

Prepare the medium per label directions and test for chlamydospore production. Using fresh cultures, streak two parallel lines approximately 1.5 cm long and 1.0 cm apart. Make an S-shaped streak lightly back and forth across the two parallel streak lines. Place a coverslip over the streak marks. Incubate at 20-25°C for 3-5 days and examine microscopically.

| ORGANISM | ATCC™ | RECOVERY | CHLAMYDOSPORES |
|---|---|---|---|
| *Candida albicans* | 10231 | Good | + |
| *Candida albicans* | 60193 | Good | – |

2. For use in the promotion of chromogenesis in *T. rubrum*. Streak-inoculate tubed medium slants. Tighten caps after inoculation and then loosen slightly. After incubation for 2-3 days, caps should be retightened to prevent further evaporation of water. Incubate tubes at room temperature for up to 14 days.

## Expected Results

After 24-48 hours, most strains of *C. albicans* and *C. stellatoidea* will have formed typical chlamydospores.[3] Invert the plate and examine microscopically (100× magnification) for chlamydospore formation along the line of inoculation.

Growth of *T. rubrum* is pink to red on medium containing dextrose and, therefore, it is distinguishable from *T. mentagrophytes*.

## Limitation of the Procedure

Polysorbate 80 enhances chlamydospore production by *C. albicans* and *C. stellatoidea*; however, it also enhances chlamydospore formation in other *Candida* species. Therefore, it is necessary to use additional media for species identification.[4]

## References


1. Taschdjian. 1953. Mycologia *45*:474.
2. Taschdjian. 1957. Mycologia *49*:332.
3. Cooper and Silva-Hutner. 1985. *In* Lennette, Balows, Hausler and Shadomy (ed.), Manual of clinical microbiology, 4th ed. American Society for Microbiology, Washington, D.C.
4. MacFaddin. 1985. Media for isolation-cultivation-identification-maintenance of medical bacteria, vol. 1. Williams & Wilkins, Baltimore, Md.


## Availability

**BBL™ Rice Extract Agar**

Cat. No. 211567 Dehydrated – 100 g