

Orange Serum Broth (i23130)

For the cultivation of lactobacilli, other aciduric microorganisms, and pathogenic fungi.

Industry: Juices

Principles & Uses

Orange Serum Broth offers an ideal environment for the recovery of acid-tolerant microorganisms, particularly those found in citrus juices with their low pH levels. This medium contains key components that make it effective for this purpose. Peptone provides essential carbon and nitrogen sources, while yeast extract enriches the medium with B-complex vitamins, promoting microorganism growth. Glucose is included as the fermentable carbohydrate and an energy source. To maintain the medium's pH, Dipotassium Phosphate serves as a buffering agent.

Citrus juices, known for their natural acidity, are selective for acid-tolerant microorganisms, making them prone to spoilage by microbes like lactic acid bacteria, yeasts, and molds. In particular, lactic acid bacteria, including species like *Lactobacillus fermentum*, *L. plantarum*, and *Leuconostoc mesenteroides*, are significant spoilers in citrus juices. Orange Serum Broth, recommended by APHA, is widely used in studies related to sanitary control in citrus concentrate processing, providing an optimal growth medium for spoilage organisms due to its pH level of 5.5.

Composition (gr/L)

Pancreatic Digest of Casein 10, Yeast Extract 3, Glucose 4, Dipotassium Hydrogen Phosphate 3, Orange Extract 5.

Final pH at 25°C 5.5 ± 0.2

Preparation from dehydrated Powder

Suspend 25 g of the powder in one Liter of distilled water. Mix Thoroughly. Autoclave at 121°C for 15 minutes. **DO NOT OVERHEAT.**

Quality Control

Dehydrated Appearance: Fine, homogeneous, free of extraneous material, may contain dark tan particles

Prepared Appearance: Light to medium, yellow to tan; clear to slightly hazy.

Reaction of 2.5% Solution at 25°C: pH 5.5 ± 0.2

Cultural Response

Incubate the inoculated culture medium for up to 4 days at 28 °C aerobically; if fungi are suspected to be present, incubate for up to 5 days. Determine the microbial count. Further tests can be performed to differentiate and identify the colonies.

Organism (ATCC*)	Recovery
<i>Leuconostoc mesenteroides</i> (9135)	Good
<i>Lactobacillus casei</i> (39392)	Good
<i>Bacillus cereus</i> (11778)	Good
<i>Candida albicans</i> (10231)	Good

*ATCC is a registered trade mark of the American Type Culture Collection.



Candida albicans causes turbidity in the medium.

Storage

Keep the container at 15-30 °C. Store prepared medium at 2-8 °C