

# Orange-serum Agar

Medium proposed by HAYS (1951) and TROY and BEISEL (see MURDOCK et al. 1952) for the isolation, cultivation and enumeration of acid-tolerant, putrefactive microorganisms in fruit juices and fruit juice concentrates, especially citrus fruits.

This culture medium is in accordance with the recommendations of the Institut für Lebensmitteltechnologie und Verpackung (Institute for Food Technology and Packaging) (1974).

## Mode of Action

The culture medium is optimally adapted to the special requirements of the microbial flora present in citrus juices (e.g. *Bacillus*, *Lactobacillus*, *Leuconostoc* species, fungi, etc.) due to the fact that it contains orange extract. It is therefore especially useful for the production control in the fruit juice industry (HAYS and TIESTER 1952).

## Typical Composition (g/litre)

Peptone from casein 10.0; yeast extract 3.0; orange extract 5.0; D(+)glucose 4.0; di-potassium hydrogen phosphate 3.0; agar-agar 17.0.

## Preparation

Suspend 42 g/litre, autoclave under mild conditions (15 min at 115 °C). Do not overheat. Pour plates.

pH: 5.5 ± 0.2 at 25 °C.

The plates are clear to opalescent and yellowish-brown.

## Experimental Procedure and Evaluation

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.

## Literature

Arbeitsgruppen des Instituts für Lebensmitteltechnologie und Verpackung der Technischen Universität München: Merkblätter für die Prüfung von Packmitteln, Merkblatt 19, "Bestimmung der Gesamtkeimzahl, der Anzahl an Schimmelpilzen und Hefen und der Anzahl an coliformen Keimen in Flaschen und vergleichbaren enghalsigen Behältern". - *Verpackgs.-Rdsch.*, **25**; Techn.-wiss. Beilage 569-575 (1974) und *Milchwiss.*, **29**; 602-606 (1974).

HAYS, G.L.: The isolation, cultivation and identification of organisms which have caused spoilage in frozen concentrated orange juice. - *Proc. Florida State Hort. Soc.* (1951).

HAYS, G.L. a. RIESTER, D.W.: The control of "off-odor" spoilage in frozen concentrated orange juice. - *Food Technol.*, **6**; 386-389 (1952).

MURDOCK, D.I., FOLINAZZO, J.F., a. TROY, V.S.: Evaluation of plating media for citrus concentrates. - *Food Technol.*, **6**; 181-185 (1952).

## Ordering Information

Product	Merck Cat. No.	Pack size
Orange-serum Agar	1.10673.0500	500 g

## Quality control (spiral plating method)

Test strains	Inoculum (cfu/ml)	Recovery rate %
<i>Bacillus cereus</i> ATCC 11778	10 <sup>3</sup> -10 <sup>5</sup>	≥ 70
<i>Lactobacillus plantarum</i> ATCC 14917	10 <sup>3</sup> -10 <sup>5</sup>	≥ 70
<i>Lactobacillus casei</i> ATCC 393	10 <sup>3</sup> -10 <sup>5</sup>	≥ 70
<i>Leuconostoc mesenteroides</i> ATCC 9135	10 <sup>3</sup> -10 <sup>5</sup>	≥ 70
<i>Candida albicans</i> ATCC 10231	10 <sup>3</sup> -10 <sup>5</sup>	≥ 70



*Lactobacillus plantarum*  
ATCC 14917



*Leuconostoc mesenteroides*  
ATCC 9135