Packaging Method for Preserving Agar Plates During Prolonged Incubation

JOHN H. GREEN and SOFJAN ILJAS

Technological Laboratory, Bureau of Commercial Fisheries, U.S. Department of the Interior, Gloucester, Massachusetts 01930

Received for publication 4 December 1968

In this report, we describe a simple packaging method which can be used to preserve either normal or salt-agar plates during prolonged incubation. In our search for halophilic microorganisms from Indonesian "Pindang," consisting of boiled and salted fish (S. Iljas and L. J. Ronsivalli, Fishery Ind. Res., in press), it was evident from the literature (2) that prolonged incubation might be necessary to achieve primary isolation.

A modified skim milk, 20% salt-agar described by Lochhead (1) was prepared, plated, and inoculated by surface spreading. The plates were then placed into a Mylar bag (3M Co., Minneapolis, Minn.) containing a moist pad of tissue paper, and open ends were heat sealed, leaving an air pocket in the bag. The packaged salt-agar plates, along with nonpackaged salt-agar plate controls, were incubated at 35 to 37 C for 72 days. The packaged salt-agar plates showed few visible signs of agar desiccation, except for one bag which had not been properly sealed, whereas the controls showed definite signs of desiccation after 1 week, with pronounced salt crystallization by the second week (see Fig. 1). This method of packaging might be useful when long incubation periods are required. As we expected, in view of the boiling process, no halophilic microorganisms were observed on any of these salt-agar plates.

To verify the usefulness of this method, surface inoculations of a mixture of aerobic, mesophilic microorganisms were made on prepoured Eugonagar (BBL) plates, 10 plates per dilution, and half of the plates were packaged as described above. Counts made after 24- and 48-hr incubations (35 to 37 C) were identical on packaged plates and unpackaged controls. The packaging had no apparent effect upon the outgrowth of microorganisms. After 2 weeks, the packaged plates were still intact, whereas the unpackaged controls had undergone desiccation. One note of caution: plates inoculated by surface spreading (0.1 ml) should be incubated (35 to 37 C) from 4 to 6 hr before packaging to allow for absorption of excess moisture from the surface of the plate.

LITERATURE CITED