

Practical Tray-Rack for Culture Dish Incubation

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The modification of cafeteria trays for use as racks for agar dishes is described.

The use of dishes instead of tubes for the isolation of microorganisms in our medical mycology laboratory necessitated developing a method for culture incubation that would facilitate multiple culture readings over 2 to 4 weeks. We find agar dishes superior to tubes because they offer an increase in agar surface for better harvesting of organisms as well as better isolation when more than one type of organism is present.

Standard cafeteria-type trays, 12¼ by 16½ inches (approx. 31.1 by 41.9 cm), are used. Four ¼-inch (0.64-cm) holes are drilled through each tray, 4½ inches (11.4 cm) from the corners [holes are 7½ inches (19.1 cm) apart, center to center] and as near the edge as possible (Fig. 1). The legs attached to the trays are 1¾-inch (4.5-cm) aluminum spacers (Herman H. Smith Co., Brooklyn, N.Y. item no. 8390), ⅝ inch (0.8 cm) in outside diameter with a tapped 10/32 hole in each end. Each spacer is cut in half to make two ¾-inch (1.9-cm) legs, each with a solid and a tapped end. Brass or nickel-plated cartridge cases (for 0.45-caliber automatic pistol) without caps are

used as cups for the legs of the trays (Fig. 2). The cap hole is drilled out to accommodate a ½-inch (1.3-cm) 10/32 stainless-steel binding head screw.

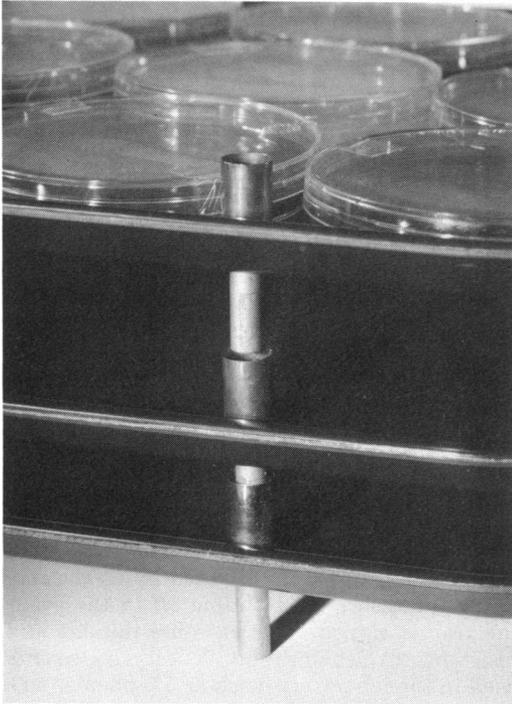
When stacked, the trays form a stable array with the trays 1¼ inches (3.2 cm) apart. There is an air space of approximately ½ inch between trays. Each tray will accommodate 12 agar dishes. The ¾-inch slanted lip on the tray keeps the dishes from sliding off in the event the tray is tipped. The trays are durable and resistant to cleaning and disinfecting agents used in the laboratory (such as 5% phenol, 40% Formalin, or xylene) and can withstand autoclaving at 115 C at 15 psi for 15 min.

We have used the tray-rack method of incubation for more than 2 years, in processing more than 20,000 specimens. Initially there was excessive drying of the agar dishes due to the long incubation at 30 C. We corrected this problem by increasing the content of the dishes to 45 ml of medium per plate and placing pans of water in the incubator to increase the relative humidity to 60 to 65%.

Although the trays may be stacked as high



FIG. 1. Stack of three tray-racks, showing placement of culture dishes on tray.



as desired, we have found that columns of 8 to 10 trays are the easiest to handle. To expedite the reading of the cultures, the dishes are not inverted. In the first few days, moisture collects on the inside of the dish lid, but this disappears after about 5 days of incubation. Use of an intense light facilitates examination of the closed plates, especially in the first few days of incubation.

Plate cultures of pathogenic organisms (*Histoplasma*, *Coccidioides*, etc.) are extremely dangerous. Dishes with filamentous growth are opened under a safety hood only. If the organism proves to be a pathogen, subcultures are made to tubes, and the plates are discarded. Cellophane tape on each side of the dish prevents the inadvertent opening of the dish when the cultures are being read.

James Isaacson and the Section of Engineering assisted in the preparation of this tray-rack.

FIG. 2. Aluminum spacers and cartridge-case cups.