TECHNICAL NOTE NO. 5 -- "PINK YEAST" ISOLATED FROM OYSTERS GROWS AT TEMPERATURES BELOW FREEZING

In certain freezing tests carried out at the Service's College Park Fishery Technological Laboratory, several packages of oysters stored at 0° F. for a period of one month showed, upon thawing, a decidedly pink-colored liquor and pink-to-red spots on the oysters. There had been no signs of discoloration of the fresh oysters or liquor when first packaged. "Pink yeast" was suspected as being the causative agent for the discoloration.

Six oysters and a small amount of liquor were taken from each experimental lot and were macerated for two or three minutes in a Waring Blendor. A loopful of substance was streaked on Sabouraud's agar media in a Petri dish. Gram staining in each case revealed a mixed culture of yeast cells and a gram-positive rod bacterium. The growth of the bacterium was confluent and rapid, covering the yeast colonies. In order to inhibit the growth of the bacterium and make it possible to obtain a pure culture of the "pink yeast," one drop of 50 percent lactic acid was added to 10 ml. of Sabouraud's agar media. A culture of "pink yeast" was obtained and an isolated colony from the Sabouraud's agar media was transferred to a test tube of Sabouraud's broth media. This culture was used for the various inoculations made throughout this study.

It hardly seemed likely that growth would occur at as low a temperature as 0° F.; however, growth did take place in broth tubes at temperatures of 0° F., -14° F., and -30° F. to -35° F. Sabouraud's agar media in plates were also streaked with the isolated culture and the plates were stored for one to two months at 0° F. Small colorless colonies were noted on the media, after the frost had thawed from the inside of the plate. It is felt that colonies of this size could not possibly have developed during the half-hour thawing period. Rapid growth with pigment formation took place later at room temperature.

Individual oysters plus liquor were placed in sterile test tubes, inoculated with one of the yeast cultures, and stored for one month at 0° F. Samples of oysters which were not inoculated served as controls. After storage, one frozen oyster had four large pink colonies on the surface. Diffused pink-colored areas were on the surfaces of the other oysters. No visible growth of "pink yeast" was noted in the control samples. The colony formation, in particular, was considered good proof of growth at 0° F.

The inoculated tubes of Sabouraud's broth media which were stored at 0° F., -14° F., and -30° F. to -35° F., respectively, all showed small pink colonies in the frozen media, which indicated that growth had occurred at these temperatures.

From the foregoing results, it was concluded that "pink yeast" is capable of growing at temperatures of 0° F. to -30° F.

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