

COMMERCIAL FISHERIES REVIEW

November 1949

Washington 25, D. C.

Vol. 11, No. 11

pH DATA ON PACIFIC OYSTERS

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INTRODUCTION

Methods for determining the relative freshness of shucked Eastern oysters were investigated by Baldwin, Puncoschar, and Pottinger (1941). The pH measurement from the standpoint of rapidity and reliability was deemed the most satisfactory. Hunter and Linden (1923) observed a relationship existing between pH of the oyster liquor and the appearance and odor of the oysters. Measurements of pH can be of value in examining shucked oysters of doubtful quality according to investigations of Hunter and Harrison (1928). Pottinger (1948) found that pH values were a useful index in following changes in the degree of freshness of shucked Eastern oysters. As the result of Piskur's work (1947), it may be concluded that pH measurements may possibly be of value as an objective index of quality of shucked Pacific oysters. In reviewing these investigations, it is noted that Piskur (1947) made his pH evaluations on ground oysters, while Pottinger (1948) made his on the oyster liquor.

In studies being made with shucked Pacific oysters in the Sixth Army Area Food Laboratory, U. S. Department of the Army, pH values were obtained on ground oysters and oyster liquor from the same samples. These findings are the basis for this report. The oysters examined had all been physically and organoleptically accepted as satisfactory at the shucking plants by qualified army veterinary inspectors. Army acceptance of good quality requires a pH value of 6.20 at origin.

PROCEDURE

The samples used in this study were those submitted for examination as to pH and score under the regular method of drawing Army samples. Some samples were received in a frozen state, some were not.

The pH determinations were made on a Beckman pH meter, laboratory model G, using glass electrodes properly adjusted to the instrument, as well as for temperature. The sample jars, usually half-pint mason-type jars, which were ordinarily one-half to three-quarters full, were inverted gently several times in order to obtain comparable amounts of the oyster liquor present. Three 5-ml. samples of the liquor were withdrawn for pH determinations. The remainder of the sample was transferred to a Waring Blender and blended for 30 to 60 seconds or until a paste-like consistency was obtained. Enough of this material to fill three 5-ml. beakers was withdrawn, as representative of the whole, for the purpose of making the pH valuations. The average of the three readings on liquor and blended oysters was taken as the pH for the sample.

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NOTE: This article was submitted for publication by the authors who are connected with the Sixth Army Area Food Laboratory, U. S. Department of the Army, Seattle, Wash., with the approval of their agency.

No. of Samples ^{2/}	Oyster Liquor ^{3/}	Blended Sample ^{2/}	Difference
6	6.65	6.10	0.55
4	6.62	6.15	0.47
5	6.55	6.10	0.45
7	6.50	6.10	0.40
3	6.35	6.25	0.10
3	6.32	6.05	0.27
3	6.30	6.10	0.20
4	6.25	6.10	0.15
7	6.20	6.10	0.10
5	6.10	6.00	0.10
2	6.00	5.90	0.10

^{1/}All samples were thawed at room temperature.
^{2/}Number of original samples received for examination.
^{3/}Average of three determinations.

No. of Samples ^{1/}	Oyster Liquor ^{2/}	Blended Sample ^{2/}	Difference
3	6.42	6.20	0.22
4	6.40	6.30	0.10
15	6.35	6.25	0.10
18	6.30	6.06	0.24
18	6.25	6.06	0.19
55	6.20	6.05	0.15
3	6.15	6.15	0.00
8	6.10	6.10	0.00
40	6.05	5.97	0.08
18	6.00	5.96	0.04
4	5.95	5.95	0.00
4	5.90	5.85	0.05

^{1/}Number of original samples received for examination.
^{2/}Average of three determinations.

pH valuations were made on 239 samples. Of these, 49 were received in a frozen state and 190 were received fresh chilled. The results are shown in Tables 1 and 2.

DISCUSSION

It was found that the initial pH of the liquor was somewhat higher than that of the blended meats. The two values became more nearly equal the closer the pH approached 6.00. The difference in pH between liquor and blended meats was greater in the case of frozen samples.

These data were obtained from relatively few samples and are meant to be used to show the relationship existing between the pH of the liquor and blended meats on the same oyster sample. Future work on this subject should be designed to show the relationship existing between pH of oyster liquor and ground meats, and the scores obtained from a qualified taste panel. This would give a better indication of sample quality condition and be an important basis for selecting which sampling method should be used in determining pH values for oyster quality.

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