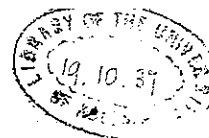


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THESIS

AN INVESTIGATION OF A TAINIT IN RIB BONES OF BACON;

The DETERMINATION of HALOPHILIC VIBRICES (N. Spp).

1st December, 1936.

Frank Berry Smith.

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FRANK BERRY SMITH.

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ABSTRACT.

The bacterial cause of a taint in ribs of bacon is identified as an obligate halophile to which the designation Vibrio costicolus is accorded. A description of the saline relations of this organism as well as of a second obligate halophile, Vibrio nitrificans (n.sp), isolated from curing brines, is given; and methods of control of taint based both on the saline relation of the causal organism and on regulation of an oxygenated metabolism in the rib by means of nitrate. It is believed that the implied dependence of production of malodour by a bacterium on the oxidation-reduction potential of the medium has not hitherto been drawn attention to. Study of these halophiles focuses attention on the function of salinity of curing media in regulating adaptation of potential halophiles from non-saline environments and infection by them.

1. The STATUS of the HALOPHILE.

Involvement of an halophilic vibrio as causal agent in taint of ribs of certain Australian bacon adds an instance of technical damage by a salt preferent organism to those already amplified in the reddening of salted fish (Harrison and Kennedy, 1933; Petter, 1931; Cloake), (a) the 'red-heat' of salt-cured hides (Lochhead, 1934; Lloyd, Marriott and Robertson), (b) and a fermentation of pickled olives (Estey, 1930). (c) The taint, distinguished deep-seated taint of cured meats by occurrence in a surface albeit special structure, (d) and thereby an apparently rare example of spoilage initiated through pickle;

Serratia (Pseudomonas) salinaria (Harrison and Kennedy).

Bacterium halobium (Petter), probably Serratia in the American classification.

Sarcina morrhuae, Klebahn (Petter).

Rhodococcus (Cloake).

Serratia cutirubra (Lochhead).

Sarcina (Lloyd, Marriott and Robertson).

Saccharomyces (Estey).

Dr. W. S. Sturges (private communication) writes;

"We have rarely encountered (in curing brines) anything we could consider
"a spoilage organism."