(+++). The mammary glands had the appearance of being in full lactation and on section the alveoli and ducts were found to have been distended with milk.

Conclusions. It is possible to initiate lactation in the pseudo-pregnant rat by injecting lactogen + the adrenal cortical hormone or lactogen + the adrenal cortical hormone + a 20% glucose solution. It would seem, therefore, that the refractoriness of the mammary glands of the pseudo-pregnant rat to lactogen can be explained on the assumption that another hormone becomes the limiting factor in milk secretion before lactogen can fully express itself.

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Effect of Pectin on Bacterial Growth.

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Several years ago we became interested in pectin when it was suggested[1] that this substance appeared to exert a germicidal action on intestinal organisms. We have tried various technics for studying different concentrations of numerous commercial pectins of different grades at various H-ion concentrations. From these studies we have developed a testing technic that appears to be satisfactory.

It is necessary to test different pectins under the same conditions to obtain comparable results. Since the higher the concentration the more difficult it is to dissolve the pectin and since the more insoluble pectins are dissolved only by severe heat treatment, which tends to break down the pectin molecule, we have standardized on a 1% pectin solution in nutrient broth. However, we have tested the more soluble pectins at concentrations up to 5% with similar results.

Each pectin was dissolved with minimum heat treatment in sterile nutrient broth of pH 6.5. These pectin broths had low pH's, ranging from 5.5 to 3.9. At the "natural" pH thus obtained, we studied the growth of *Esch. coli.* Similar studies were conducted on each pectin broth adjusted to pH 6.5, which adjustment was made at room temperature to eliminate degradation of the pectin by heat and alkali. As controls for each pectin, we used nutrient broth adjusted to the corresponding "natural" pH and also nutrient

[1] Personal communication from Dr. C. A. Tompkins.

broth adjusted to pH 6.5. All pH determinations were made with the glass electrode. One hundred cc each of these 4 broths were inoculated with 1 cc each of the same 24-hour broth culture of *Esch. coli,* and incubated at 37°C. Plate counts were made after 24 and 48 hours at this temperature.

Results obtained from studying 13 different commercial pectins of widely varying grades and types showed that pectins *per se* do not exert germicidal action. This does not confirm previously reported findings.[2] In fact in all 13 pectin broths adjusted to pH 6.5 and also in the control broths at the same pH the inoculated *Esch. coli* showed large increases after 24 and 48 hours' incubation. Furthermore in the 9 pectin broths with "natural" pH's ranging from 5.5 to 4.9 and also in the correspondingly adjusted control broths the inocula showed large increases after incubation. On the other hand in the 4 pectin broths whose "natural" pH's ranged from 4.4 to 3.9 marked decreases of the inoculated *Esch. coli* occurred which were paralleled by the counts of the control broths adjusted to these same low pH's. Thus it is seen that H-ion concentration is the factor responsible for these decreases in counts. Additional confirmation of this conclusion is obtained from the pH of the pectin and control broths after incubation. Determination of this pH is necessary to interpret properly the data secured in this type of study. This is specially significant when studying pectins that contain fermentable carbohydrates as "filler", which are used frequently to standardize the grade of the pectin.

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Occurrence of Choline-Esterase in Swine.

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The purpose of this study was to find potent sources of choline-esterase which might be obtained conveniently in large amounts for studies on the purification and properties of this enzyme, and to make preliminary observations on its distribution within tissues of

[2] Haynes, E., Tompkins, C. A., Washburn, G., Winters, M., PROC. SOC. EXP. BIOL. AND MED., 1937, **36**, 839.

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