

## 9420 P

**Bactericidal Action of Pectin.**

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The possibility of pectin having an effect on bacteria was considered in connection with a study of the therapeutic action of a pectin-agar, dextrimaltose mixture in the treatment of diarrheas of infants.<sup>1</sup> In order to test this possibility the following experiment was carried out.

Two percent pectin† added to heart-infusion broth (Difco) at pH 7.6, lowered the pH to 5.0-5.4. The medium was autoclaved at 15 pounds for 20 minutes and then transferred to sterile tubes in 10 cc. quantities. A tube of this medium was inoculated with a 4 mm. loopful of an 18-24-hour culture of *Esch. coli* and was shaken 25 times to insure thorough distribution. Dilution plates were made immediately, then after 24 hours and again after 48 hours of incubation at 37°C. A control medium without pectin was prepared in the same way and uninoculated controls were used to check the technic. It was found that the broth containing the pectin was either sterile after 48 hours or the number of organisms had decreased at least 98% while the bacteria had multiplied in the control cultures. This experiment was repeated using the same medium adjusted to pH 5.5, 6.0, 6.5 and 7.0. Illustrations of the results of these tests are shown in Table I. It has been shown that pectin is readily altered by alkali<sup>2</sup> which would explain the loss of the inhibitory action above pH 5.5. It could not be concluded from this work that pectin would decrease the bacterial count in the gastro-intestinal tract, particularly in the lower bowel where the reaction is normally above pH 5.5.

Some preliminary work has been done on the treatment of wounds with aqueous solutions of pectin with very satisfactory results. These wounds have included those of osteomyelitis and other deep wounds as well as superficial wounds, some of which had not responded well to accepted methods of treatment. An aqueous solution of pectin seems to be non-irritating and apparently stimulates growth of gran-

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<sup>1</sup> Winters, M., and Tompkins, C. A., *Am. J. Dis. of Child.*, 1936, **52**, 259.

† Kindly furnished by Sardik Laboratories, New York.

<sup>2</sup> Myers, P. B., and Baker, G. L., *Univ. of Del. Agri. Exp. Station Bull.*, 1934, 187.

TABLE I.  
Effect of 2% Pectin on Growth of *Esch. coli* in Heart Infusion Broth.

	pH	Original Count per cc.	Count after 24 hr. per cc.	Count after 48 hr. per cc.	After 48 hr. % Increase	% Decrease
Pectin	5.0	185,000	375	0		100
Control	5.0	251,000	287,000,000	935,000,000	372,410	
Pectin	5.2	147,000	3,700	69		99.9
Control	5.2	37,000	725,000,000	1,337,000,000	3,613,414	
Pectin	5.4	71,000	500	43		99.9
Control	5.4	78,000	31,000,000	75,000,000	96,053	
Pectin	5.5	90,000	4,967	1		99.9
Control	5.5	323,000	513,333,000	2,030,000,000	625,287	
Pectin	6.0	97,000	311,000	390,000,000	401,962	
Control	6.0	250,000	677,000,000	1,103,000,000	441,100	
Pectin	6.5	171,000	310,000,000	720,000,000	420,952	
Control	6.5	167,000	525,000,000	1,117,000,000	668,763	
Pectin	7.0	144,000	286,000,000	315,000,000	218,650	
Control	7.0	129,000	506,000,000	745,000,000	577,420	

ulative tissue. In cultural studies, it was found that as the wounds healed there was a marked decrease or complete disappearance of streptococci and a more gradual diminution of staphylococci. It is possible that the action of pectin on bacteria is one of the factors in the clinical success of this treatment.

### 9421 P

#### Effects of Progesterone on the Female Genital Tract after Castration Atrophy.\*

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The effects of oestrin-free progestin on the atrophic endometria of 2 castrated monkeys were described by one of us.<sup>1</sup> These animals had been castrated for 37 days and were given 4 RbU of oestrin-free corpus luteum extract daily for 10 days. The endometria of both monkeys showed unquestionable premenstrual development. Although these preparations did not produce cornification of the vaginas of castrated rats it could not be stated with certainty that they were entirely free of oestrin and that the observed effects were due only to the action of progestin. We wish here to present results of similar experiments using synthetic progesterone.†

\* Aided by a grant from the Rockefeller Foundation.

<sup>1</sup> Hisaw, F. L., *Am. J. Obst. and Gyn.*, 1935, **29**, 638.

† The synthetic progesterone was furnished by the Schering Corporation.