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The Bactericidal Action of Indole.

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(Introduced by R. A. Dutcher.)

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Gordon and McCleod[1] have called attention to the fact that there is little or no information to be found in the literature dealing with the antiseptic potency of indole. By experimentation these authors

TABLE I.
Effect of Various Concentrations of Indole on Bacterial Growth.

Organism	Conc. of Indole	Total Count	Organism	Conc. of Indole	Total Count
		per cc.			per cc.
Escherichia coli	1-1000	0	*Aerobacter aerogenes*	1-1000	0
	1-1000	0		1-1000	0
	1-2000	0		1-2000	8,000
	1-2000	580,000		1-2000	4,000
	1-4000	63,000,000		1-4000	95,000,000
	1-4000	64,000,000		1-4000	83,000,000
	1-4000	39,000,000		1-4000	80,000,000
	1-4000	45,000,000		1-8000	450,000,000
	1-4000	60,000,000		1-8000	560,000,000
	1-4000	70,000,000		no indole	600,000,000
	1-8000	250,000,000		no indole	900,000,000
	no indole	370,000,000			
	" "	480,000,000			
	" "	500,000,000			
	" "	520,000,000			
Eberthella typhi	1-1000	0	*Salmonella paratyphi*	1-1000	0
	1-2000	500		1-1000	0
	1-2000	194		1-2000	22
	1-4000	40,000,000		1-2000	0
	no indole	207,000,000		1-2000	195
	no indole	230,000,000		1-4000	42,000,000*
				1-4000	0
				1-8000	270,000,000
				1-8000	210,000,000
				no indole	430,000,000
				no indole	810,000,000
Salmonella schotmulleri	1-1000	2	*Salmonella enteritidis*	1-1000	0
	1-2000	39,000		1-1000	0
	1-4000	87,000,000		1-2000	18,300
	1-4000	74,000,000		1-2000	21,000
	1-4000	80,000,000		1-4000	90,000,000
	no indole	480,000,000		1-4000	98,000,000
	no indole	550,000,000		1-4000	130,000,000
				no indole	300,000,000
				no indole	380,000,000

*Estimated.

[1] Gordon, J., and McCleod, J. W., *J. Path. and Bact.*, 1926, xxix, 13.

found indole to have an antiseptic effect ranging from 2 to 10 times that of carbolic acid, the efficiency depending upon the kind of bacteria exposed to its action. *B. coli* was one of the most resistant organisms but failed to grow in the presence of 0.1% indole. Gordon and McCleod believe that indole production may well be the mechanism by which *B. coli* maintains its dominant position in the fecal flora. During a study of the production of indole by fecal bacteria, information was desired concerning the effect of indole upon the growth of bacteria.

The medium used for the tests was 2% Witte's peptone water which had been adjusted to yield a pH of 7.6 after autoclaving. A solution of indole 1-1000 was prepared and filtered by pressure through a Seitz filter. Various amounts of this solution were added to 50 cc. portions of sterile peptone water. The flasks of medium were then inoculated with the organism to be studied by transferring a loopful of a 24-hour culture in 2% peptone water. All of the test cultures were incubated at 37° C. for 24 hours after which counts were made by the plating method.

The results obtained are shown in Table I. The growth of all of the microorganisms studied was hindered by the presence of indole in the culture medium. *Escherichia coli* was the most resistant of the organisms studied. Nevertheless its growth was prevented in the presence of 0.1% indole. *Salmonella paratyphi* was apparently very susceptible to the action of indole. Each result shown in the table was obtained by the analysis of separate cultures.

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Effect of Echinid Egg-Waters on the Surface Potential Difference of the Sperm.

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The egg-waters of the sand-dollar *(Echinarachnius parma)*, starfish *(Asterias forbesii)*, and sea-urchin *(Arbacia punctulata)*, have been tested by electrophoresis for their effects on the sperm of each of these 3 species. Egg-water was routinely prepared by allowing freshly obtained eggs to stand a half-hour or more in contact with 0.5 M. NaCl adjusted with NaOH to an approximate pH of 8.2.