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The aerobic cultivation of bacillus histolyticus.

By IVAN C. HALL.

[*From the Department of Bacteriology and Experimental Pathology, University of California, Berkeley, Calif.*]

A strain of *B. histolyticus* (No. 141) received from the Pasteur Institute in Paris in March, 1921, and described by me[1] last year, was recently found capable of repeated and successive aerobic culture upon the surface of meat infusion and blood agar slants without resort to any method of reducing the oxygen pressure. The accuracy of this observation is guaranteed not alone by the unique pathogenicity, but as well by the particular combination of morphologic and cultural properties of this species which enable one to identify it without reference to its oxygen requirements.

All authors dealing with *B. histolyticus* have regarded it as an obligate anaerobe and my own previous failure to observe aerobic growth can only be explained by my reliance upon meat extract, instead of meat infusion, agar slants, for detecting aerobic growth until recently. Even the growth upon meat infusion agar is extremely delicate and might be easily overlooked by any but a highly critical dye. My first supposition upon observing the delicate transparent aerobic growth upon a meat infusion blood agar slant was that a contamination had occurred. This assumption was clearly denied when as many as 31 successive transplants of this culture were made upon blood and plain meat infusion agar during a period of about 60 days without altering any of its morphologic, cultural or pathogenic characteristics permanently; there were temporary differences observed, however, in the morphology of the first few aerobic cultures, but later transplants appeared to be identical in every way with a corresponding strain cultured anaerobically in brain medium.

The possibility of contamination was also excluded by finding no significant differences in well separated deep agar colonies and in the observation that subcultures from such deep

[1] Hall, *Jour. Inf. Dis.*, 1922, xxx, 445.

colonies may also be grown aerobically. Deep agar colonies are distinctly larger, however, than those nearer the sufarce; there is usually, but not always indeed, a distinct zone of inhibition at and below the surface as with obligate anaerobes which is hard to explain if this species is a facultative aerobe-anaerobe, as my findings suggest.

That the above observations, limited at first to a single strain, were not to be interpreted as indicating acclimation of this strain to aerobic life, was shown when three other French strains received from Dr. Morton C. Kahn of Cornell University Medical School were also cultured aerobically. A fourth strain labelled *B. histolyticus* by Major Jablons and received from Dr. Kahn fail to grow aerobically and also failed to produce lesions in guinea pigs. But a strain of *B. histolyticus* recently isolated by my student, Miss Emelia Peterson, from a specimen of California soil grows both aerobically and anaerobically and has been transplanted aerobically three times with no apparent change in morphology, cultural characteristics or virulence.

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The isolation of bacillus histolyticus from soil in California.

By EMELIA PETERSON and IVAN C. HALL.

[*From the Department of Bacteriology and Experimental Pathology, University of California, Berkeley, California.*]

During a survey of California soils for anaerobic bacteria, we encountered a strain of *B. histolyticus* which is of interest as the first recovery of this species in America and one of the few records of its occurrence in soil. All of the other cultures so far described came from war wounds in France and the only recorded proof of this organism as an inhabitant of soil, aside from the fact that most war wounds are contaminated by dirt, is a statement by the Medical Research Committee[1] that, "it . . . has been obtained from earth."

The soil specimen was a clay adobe from near Walnut Creek, California, which lies in a rich agricultural valley of the coast range about 12 miles from Berkeley.

*British Medical Research Committee, Report No. 39, 1919.