THE OCCURRENCE OF BACTERIUM LACTIS VISCOSUM IN SOIL

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Little is known concerning the natural habitat of most microorganisms, hence any contribution to this phase of bacteriology will furnish welcome and valuable information to students of this subject.

During the autumn of 1915 at the New Jersey Agricultural Experiment Station, in the course of certain bacteriological investigations of soil, a colony resembling *Bacterium lactis viscosum* was found on a plate of beef broth agar. The plate had been poured from a dilution of 1 to 50,000. The soil was a Sassafras sandy loam which had not been manured with cow dung for at least 3 years. The writer's attention was directed to this colony on account of its great viscosity and its reddish tint. After isolation in pure culture on agar slants, its morphological and cultural characteristics were determined, including its action on milk. The organism corresponded with Conn's description in every particular except that in the soil culture the reddish color was somewhat more pronounced on solid media. It also agreed very well with the stock laboratory culture of *Bact. lactis viscosum*.

The next year (1916), another organism of this type was isolated from a large decayed soybean nodule. It made appreciable growth on Ashby's mannite agar, which is nearly nitrogen-free. On account of the very viscid nature of the colony it was transferred to broth agar and the cultural characteristics of the bacterium determined in the usual way. These tests confirmed the indication that the organism was *Bact. lactis viscosum*. It produced some pigment but this character was not nearly as pronounced as in the organism first isolated. After three transfers on broth agar, it was replanted on Ashby's mannite agar but no growth was observed. The organism had apparently lost its power of living on this nitrogen-poor medium. Perhaps like many other freshly-isolated soil organisms it is able for a short time to fix some atmospheric nitrogen.

The soybean field from which this second organism was isolated, was located within a hundred yards of a heap of horse manure but no cow dung had been added to the soil in several years. Cattle had not been allowed to roam on either field for over twenty years. The soil on which the soybeans grew was a Penn shale loam.

The presence of this organism in soils of two different types, indicates that the soil is probably a natural medium for the development of this widely

distributed and trouble-causing organism. From at least three cases of slimy milk in the state of New Jersey during the past two years, identical cultures of this organism were obtained. If the soil is a home of this bacterium, then the sporadic outbreaks of ropy milk in dairies throughout the country may be more readily understood. At first usually but one teat of the cow is affected, then it spreads rapidly to the other teats or other animals unless promptly checked. Unless all utensils which come in contact with ropy milk are thoroughly sterilized, they may harbor the organisms and be a potent source of trouble for a long time. The organism does not form spores, but there are many other non-spore-forming bacteria in the soil. Perhaps the slime produced serves as a sort of protection and aids it to multiply and live in the soil.

SUMMARY

Two organisms, corresponding to written descriptions and laboratory cultures of *Bact. lactis viscosum*, were isolated from two different soils, which had not received applications of cow dung for several years. It is probable that the soil is a natural habitat of this organism.