METHODS FOR DISTINGUISHING BETWEEN LEGUME BACTERIA AND THEIR MOST COMMON CONTAMINANT

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A certain soil saprophyte which has commonly been confused with the legume bacteria and which was first described by Beijerinck and van Delden (1) as *Bacillus radiobacter* is well known today as a frequent contaminant of legume inoculants. Lohnis (4) called the organism *Bacterium radiobacter*; but Bergey (2) has placed it in the genus *Achromobacter* because *Bacterium* is not recognized in this classification.

The transfer from *Bacillus* to *Bacterium* was certainly justified, as nearly all bacterial classifications at present reserve the former genus for spore-forming bacteria. To a writer who continues to recognize *Bacterium*, however, there is no reason for taking it out of this genus until such time as its characters are sufficiently well known to place it in some genus with other bacteria to which it seems to be related. For the purpose of this paper, therefore, it will be denoted *Bacterium radiobacter* (Beijerinck and van Delden) Lohnis.

The first suggestion as to practical methods for differentiation between *Bact. radiobacter* and the legume nodule bacteria (species of *Rhizobium*) was offered by Lohnis and Hansen (5). They found that potato slants and litmus milk were useful for this purpose. *Bact. radiobacter* produced a brown coloration of the medium, while *Rhizobium* did not. In the hands of other investigators, however, the coloration produced by certain strains of *Rhizobium* and the lack of coloration on the part of certain strains of *Bact. radiobacter* were sufficient to confuse the results in many cases so that soil bacteriologists are reluctant to use these media. Another medium, veal infusion, was proposed by Hofer and Baldwin (3) because it allowed *Bact. radiobacter* to grow well, while most of the legume bacteria did not.

The present investigation was begun with the purpose of comparing a number of media inoculated with strains of *Bact. radiobacter* procured from various laboratories throughout the world and with several species of *Rhizobium* which were obtained originally from the collection of the University of Wisconsin. The first media to be tested were Endo’s medium, eosin-methylene-blue medium, and other indicator media. None of these proved suitable, but tests of veal infusion showed it to have value. Two other media were developed for the purpose, and the description of all three follows.

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