PROBABLE RELATIONSHIPS OF THE ORGANISMS
CAUSING CROWN GALL AND LEGUME NODULES

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The very close similarity between the crown gall and legume nodule organisms in the matter of cultural characteristics is pointed out. It is shown that to tell them apart one must either make plant inoculation experiments or employ very special cultural tests. The organism frequently called "radiobacter" is very similar. Yet in Bergey's Manual, the species Achromobacter radiobacter and Phytomonas tumefaciens are in a different order from the genus Rhizobium which includes the root-nodule bacteria.

A suggested rearrangement of the non-spore-forming bacteria is given, which seems to group these organisms more nearly in accord with their actual relationships.

SPECIES OF LEGUMES AND THEIR ASSOCIATED ROOT NODULE ORGANISM

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Improvements in methods have made it possible to investigate more closely the relations existing between various species of legumes and various strains of the root nodule organism. It is evident that nearly all of the species of legumes may be placed in several of the recognized plant-bacteria groups. Species of legumes that have not heretofore been placed in any group when tested by the improved technique may meet the requirement for being placed in several groups. Since this is the case, it questions the value of the plant-bacteria group which has been gradually developed during the past forty-five years. It has been possible to produce nodules on the same individual plant, after dividing its root-system, employing four strains or cultures of bacteria that previously were considered to be definite members of the twenty or thirty recognized groups of today.