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Pollen Studies of Some Leguminosae

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THE IMPORTANCE OF SOIL COLLOIDS TO SOIL MICROORGANISMS

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The significance of soil colloids with respect to microorganisms in the soil has received little attention by soils investigators. Results secured here indicate that the soil colloid is the principal habitat for both aerobes and anaerobes in the soil.

It was found that when colloidal suspensions were added to culture media for *Rhizobium leguminosarum, Bacillus radiobacter* and *Azotobacter chroococcum*, notable increases in growth and gas production were secured with these organisms. *Azotobacter chroococcum* showed a more luxuriant development of pigment in a shorter time when grown in the presence of sterile soil colloidal material than when grown on the ordinary medium.

These results also indicate that the organisms studied secure some of their growth energy from the soil colloids, and probably all of their nutrients from this source when in their natural habitat, the soil.

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POLLEN STUDIES OF SOME LEGUMINOSAE[1]

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The pollen of thirty species distributed among twenty-five genera of the Leguminosae are covered in this study. The size, shape, and the number of germ pores of the pollen grains and the substances within their protoplasm are recorded.

The estimated average diameters of pollen grains range from 9 microns in the genus *Mimosa* to 65 microns in the genus *Desmodium*. In most species the diameters range between 25 and 45 microns. The number of germ pores is three in twenty-eight of the species. In two species the number of germ pores was not definitely determined.

In twenty of the species the pollen grains are approximately globular, in seven species slightly angular, in four species somewhat elliptical and in two species lens-shaped.

The reaction of the pollen of the thirty species to tests for

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starch, sugar, dextrin, proteins and fats show starch present in twelve species, sugar in two species, dextrin in two species, proteins in twenty-five species and fat in five species.

The presence of three germ pores and of protein characterizes the pollen of these thirty species of Leguminosae.

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