

RESEARCH NOTES

HEMAGGLUTINATION BY BACTERIAL PHYTOPATHOGENS

A number of bacteria have been shown to be capable of agglutinating erythrocytes of one or more animal species.¹ To our knowledge the bacteria possessing this property have all come from animal sources. Therefore, it seemed of interest to carry out tests designed to determine whether bacterial plant pathogens also possess red-cell agglutinating properties.

One hundred and fifty-six cultures were used for these tests distributed numerically as follows: *Pseudomonas solanacearum*, 52; *Erwinia carotovora*, 31; *Erwinia carotovora* var. *atrosepticum*, 17; *Erwinia carotovora* var. *aroideae*, 28; and *Erwinia chrysanthemi*, 28. This group of cultures included isolates from many different plant sources in various countries. Some local isolates were also included in the group. Before testing, all cultures were grown in 1-percent tryptone-glucose broth for 2 days at room temperature.

Blood from healthy rabbits and chickens was collected separately in sodium citrate solution. Human blood (type O) was obtained from a blood bank. One-percent suspensions of red cells from each species were made in 0.85-percent sodium chloride after packing and washing three times by centrifugation.

The tests were performed by placing three drops of culture on a clean slide and mixing separately with one drop of each of the three red-cell suspensions. Each culture was tested at least three times. The criterion for determining whether a culture was definitely positive or negative was the occurrence of gross clumping of the red cells in two out of three tests with each culture. Reactions were observed immediately and up to 3 minutes after mixing.

Out of the 156 cultures tested, 23 (14.7 percent) agglutinated human cells, 51 (32.6 percent) agglutinated rabbit cells, and 52 (33 percent) agglutinated chicken cells. No definite tendency to agglutinate a particular red-cell species could be correlated with specific bacteria. Some strains of a single bacterial species were found to agglutinate one red-cell species while others agglutinated more than one. Eight *Pseudomonas solanacearum* strains isolated in Japan from solanaceous hosts agglutinated rabbit erythrocytes only. However, three other strains from solanaceous hosts obtained elsewhere agglutinated the three species of erythrocytes used.

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¹ Neter, E. Bacterial Hemagglutination and Hemolysis, *Bact. Rev.* 20(3): 166-88, 1956. December 9, 1965.