THE ESSENTIAL CHARACTERISTICS OF THE SPECIES CLOSTRIDIUM HEMOLYTICUM

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Clostridium hemolyticum was first described by Vawter and Records (J. Am. Vet. Med. Assoc., 68, 494, 1926) who found it to be the causative agent of bovine hemoglobinuria in Nevada, and who named it Clostridium hemolyticum bovis. Sordelli et al., (Compt. rend. soc. biol., 106, 142, 1931) in Chile, isolated from cattle afflicated with a similar disease a pathogenic Clostridium which they considered to be quite similar to the organism isolated by Vawter and Records. This organism was named C. hemolyticum var. sordelli by Hauduroy (Dict. d. Bact. Path., 1937, 125).

Several investigators have assumed that the organism isolated by Sordelli belongs to the species C. hemolyticum, whereas, considerable difference exists between this organism and C. hemolyticum as originally described. C. hemolyticum ferments only glucose, fructose, and glycerol, produces acid and slow coagulation in milk with no digestion of the casein, and possesses no somatic antigens in common with Clostridium novyi. The hemolysin, which is also the lethal toxin (Jasmin, Am. J. Vet. Research, 28, 289, 1947), is a lecinthinase serologically related to the beta toxin of type B C. novyi (MacFarlane, Biochem. J., 47, 267, 1950). The organism isolated by Sordelli, on the other hand, ferments a number of carbohydrates in addition to glucose and fructose, including maltose, inositol, and mannitol, and digests milk without coagulation. It possesses a somatic antigen in common with C. novyi (Turner and Esles, Australian J. Exptl. Biol. Med. Sci., 21, 79, 1943). Comparison of strains of C. hemolyticum isolated by Vawter and Records, as well as a number of strains isolated in this laboratory, with a subculture of Sordelli's organism received from Dr. A. R. Prévot of the Pasteur Institute, Paris, has provided further evidence that these organisms are not identical; for it was found that the organism isolated by Sordelli produces a hemolysin which was not serologically identical with the lecinthinase of C. hemolyticum or the beta toxin of type B C. novyi.

Since C. hemolyticum is used for the active immunization of cattle against bacillary hemoglobinuria, and antitoxin for therapeutic treatment is prepared by immunization with C. hemolyticum toxin, it is essential that this organism not be confused with clostridia which are only superficially similar. It is suggested, therefore, that the species C. hemolyticum be restricted to those strains of pathogenic clostridia whose fermentative ability is restricted to the simple monosaccharides, whose principal toxin is a hemolytic lecinthinase serologically related to that of the classical strains of C. hemolyticum, and which possess no somatic antigens in common with C. novyi.

INDUCED VARIATION IN THE g PHASES OF SOMATIC GROUP B OF THE GENUS SALMONELLA1

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In previously reported studies dealing with the g antigens of the Kauffmann-White schema it was demonstrated by Bruner (J. Bact., 57, 387, 1949; 64, 138, 1952) that Salmonella oranienburg could be transformed into S. montevideo and that Salmonella bledgam could be induced to form S. enteritidis, S. moscow, and S. dublin. These variations were accomplished by growth of

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