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METHOD OF PREPARING HOG CHOLERA VACCINE

Frank W. Tilley, Washington, D. C., assignor to Claude R. Wickard, as Secretary of Agriculture of the United States of America, and his successors in office

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3 Claims. (Cl. 167—80)

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This application is made under the act of March 3, 1883, as amended by the act of April 30, 1928, and the invention herein described, if patented, may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment to me of any royalty thereon.

This invention relates to vaccines and a process for their preparation, with particular reference to a vaccine for immunizing swine against hog cholera.

The vaccine of this invention is prepared by using blood virus, that is, the virus in the blood of an animal infected with the disease. Such blood virus may be obtained by using either defibrinated blood or the clear blood serum.

In preparing the vaccine, it is essential that the blood virus be so treated that its power to produce the disease, that is, its disease-producing principle, is attenuated or destroyed, while its power to stimulate the production of anti-bodies in the animal organism, that is, its protective principle, is left comparatively unimpaired. In addition to this, if a vaccine is to be comparatively safe to use, stable against change during storage, and safe against contamination from outside sources while handled prior to injecting healthy animals, it should be so treated as to be sterile.

Contaminating organisms in the vaccine may be present from a number of sources. They are frequently present in the blood itself taken from the cholera-infected hog, and they may be introduced from outside sources while preparing the vaccine or through careless or unskillful handling by persons administering it.

Such contaminating organisms may be harmful to a healthy animal injected with the vaccine, and they are frequently destructive of the vaccine itself, causing spoilage of the various types. Unsterile vaccines have often failed, when not used fresh, due to destruction of their anti-body producing properties. Therefore, it is desirable so to treat the vaccine as to destroy contaminating organisms.

The patent to Dorset, No. 2,102,235, on which the present invention is an improvement, discloses a means of treating the blood virus with a water-soluble salt of hexa-methyl pararosaniline (using the hydrochloride, commonly known as "crystal violet") and incubating the blood virus, thereby to destroy its disease-producing principles without destroying its protective properties. In addition, Dorset discloses benzophenol, C_6H_5OH, as an antiseptic. However, in using the process of the Dorset patent, it has been found that a sterile vaccine is not consistently produced, due, probably to ineffectiveness of the benzophenol to sterilize against all types of contaminating organisms. Furthermore, the use of benzophenol has a detrimental effect, in that the vaccine is undesirably thickened during the attenuation or incubation stage of its production.

This invention has for its object the production of a blood virus vaccine which is more consistently sterile, whether contaminating organisms be present in the blood from which the vaccine is derived or be introduced in the process of making the vaccine or subsequent to its production.

I have found that mixing hog cholera blood virus with an antiseptic and attenuating agent comprising crystal violet dissolved in glycerol in proper proportions, and incubating the mixture in the conventional manner, results in a vaccine which is consistently sterile.

In practicing the invention, in general, crystal violet is dissolved in glycerol in the amount of about 0.25 per cent of crystal violet. This percentage may be varied somewhat, but over-concentration results in difficulty in effecting the solution. This solution is then mixed with the blood virus in the ratio of about from 15 percent to 25 percent of solution to about 85 percent to 75 percent of blood virus, the optimum ratio being about 20 percent of solution to 80 percent of blood virus, and the mixture is then incubated in the regular manner. In the selection of an antiseptic agent, it is essential that one be chosen which does not destroy the immunizing properties of the vaccine, which does not interfere with its physical properties, and which is not harmful to the animal to be injected with the vaccine. Glycerol, when used in the manner set forth, satisfies these conditions.

The following example exhibits a specific illustration of the invention.

One part of crystal violet was dissolved in 400 parts of glycerol and the solution was added to 1600 parts of defibrinated blood virus obtained from a hog sick with cholera. The resulting mixture was incubated at about 37.5° C. for an interval of time sufficient to destroy the disease-producing power of the virus. About a two-week period of incubation is ordinarily allowed, although potent, sterile hog cholera vaccines have been obtained under this process in periods as short as six days.

The vaccine thus produced has in all cases been found to be sterile and of suitable potency for its purpose. It may be stored at long intervals

without deterioration and may be administered without danger of contamination when used under field conditions, since the antiseptic properties are sufficient to destroy at least all ordinary organisms which may be inadvertently introduced.

Having thus described the invention, what is claimed is:

1. A process of preparing vaccine for immunizing swine against hog cholera, comprising mixing blood virus obtained from hogs sick with cholera with a solution of crystal violet in glycerol, and incubating the mixture, the proportions of blood virus, crystal violet and glycerol and the temperature and time of incubation being such that a sterile vaccine results.

2. A process of preparing sterile vaccine for immunizing swine against hog cholera, comprising mixing blood virus obtained from hogs sick with cholera with a solution of crystal violet in glycerol in a concentration of about 0.25 percent, in the proportion of about from 15 percent to 25 percent of the solution to about from 85 percent to 75 percent of the blood virus, and incubating the mixture at such temperature and over such interval of time that the disease-producing principles are destroyed without destroying the protective properties.

3. A process of preparing sterile vaccine for immunizing swine against hog cholera, comprising mixed blood virus obtained from hogs sick with cholera with a solution of crystal violet in glycerol in a concentration of about 0.25 percent, in the proportion of about 20 percent of the solution to about 80 percent of the blood virus, and incubating the mixture at such temperature and over such interval of time that the disease-producing principles are destroyed without destroying the protective properties.

FRANK W. TILLEY.