SIMPLIFIED METHOD FOR THE PREPARATION OF SILICA GELS

A. J. STERGES

Texas Agricultural Experiment Station

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In a previous paper (Sterges 1942) a new method suitable for the preparation of silica gels in general laboratory routine work was reported. Full details were also given for the preparation of the reagents involved and the construction of an apparatus by which sterile medium may be obtained. One of the readers, however, raised the question as to the feasibility of preparing the gels by mixing the reagents in a vessel, and then pouring the medium in Petri dishes or in tubes, as is usually done with agar. In this way, much time could be saved and the construction of the apparatus eliminated.

This is possible, since gels with a pH value of about 7.4 can be prepared by mixing 1 volume of lime water with 1 volume of sodium silicate and 1.5 volume of acid nutrient of medium #1, as given in the previous paper. This medium, from the time the three reagents are mixed together, remains in liquid form about 8 minutes, a time interval which is sufficient for transferring it to plates or to tubes before actual gelation takes place. A number of gels, therefore, can be plated out within this intervening period. This is a very convenient method and can be used advantageously for the preparation of gels in the general laboratory routine work with the following procedure.

First, prepare acid nutrient of medium #1, as given in the previous paper, by mixing 700 ml. of half-normal hydrochloric acid with 300 ml. of mineral nutrient, plus the organic substances needed. Second, mix 1 volume of lime water with 1 volume of half-normal sodium silicate by pouring the lime water into the silicate solution. The latter solution ought not to be added to the former reagent because a precipitate is formed. Third, mix 1.5 volume of acid nutrient with the lime water-sodium silicate mixture and stir thoroughly. Fourth, pour the medium into Petri dishes or tubes, and allow the gels to set for about 2 hours. Fifth, transfer them to an electric oven and raise the temperature to about 100°C. After one hour, turn off the current and allow to cool. Finally, remove the gels from the oven, put aside under Bell jars, and inoculate as desired.

The above method is very simple and can be conveniently used whenever inoculations are to be made on sterilized gels. However, when the inoculum is to be mixed with sterilized liquid medium before gelation takes place, the setting up of the apparatus, as given in the previous paper, will be found necessary.

REFERENCE

STERGES, A. J. 1942. Adaptability of silica gel as a culture medium. J. Bact., **43**: 317–327.