

plasmic nor fungus-life appeared during the time the experiments were continued.

Another substance, arsenious acid, also presented a marked difference in its action in the two solutions; for although with albumen twenty-two days elapsed before vibrios were present, and eighteen before fungi, with gelatine animal life appeared after two days, and at no time did any fungi exist. The effects of the other substances with gelatine were so similar to those with albumen, that it is unnecessary to state them here.

III. "On the Relative Power of Various Substances in arresting Putrefaction and the Development of Protoplasmic and Fungus-Life." By Dr. F. CRACE-CALVERT, F.R.S. Received February 22, 1872.

(Abstract.)

This series of experiments was undertaken as being complementary to those described in my last paper, and consisted in adding to a solution of albumen, swarming with microscopic life, one-thousandth part of the substances already enumerated in that paper, and examining the results produced immediately after the addition of the substances, and after one, six, and sixteen days; but in this abstract only the results obtained in the first and last cases will be noticed.

The solutions were placed in test-tubes similar to those described in my last paper.

The experiments were begun on the 20th Sept. 1871, the solutions being kept at a temperature of 15°–18° C.

In the standard solution the amount of life and putrescence increased during the whole of the time.

The first class includes those substances which completely destroyed the locomotive power of the vibrios immediately, and completely prevented their regaining it during the time the experiments were conducted:—

Cresylic acid.

The second class contains those compounds which nearly destroyed the locomotive power of all the vibrios present when added, and afterwards only one or two could be seen swimming about in each field:—

Carbolic acid, sulphate of quinine, chloride of zinc, and sulphuric acid.

The third class are those which acted injuriously on the vibrios on their addition, leaving only a small number retaining the power of swimming, but which allowed the vibrios gradually to increase in number, the fluid, nevertheless, containing less life after sixteen days than the standard putrid albumen-solution:—

Picric acid and sulpho-carbolate of zinc.

The fourth class includes those substances which acted injuriously at first, but permitted the vibrios to regain their former locomotive power,

so that the fluid after sixteen days contained as much vibrio-life as the standard putrid albumen :—

Chloride of aluminium, sulphurous acid and prussic acid.

The fifth class contains those compounds which acted injuriously at first, destroying the locomotive power of most of the vibrios, but which afterwards permitted the vibrios to increase more rapidly than in the standard albumen-solution :—

Bleaching-powder, bichloride of mercury, chlorine-solution, caustic soda, acetic and nitric acids, sulphate of iron, and the sulpho-carbolates of potash and soda.

The sixth class contains those compounds which exercised no action on the animalcules, either at first or after sixteen days :—

Arsenious acid, common salt, chloride of calcium, chlorate of potash, sulphate of lime, bisulphite of lime, hyposulphite of soda, phosphate of lime, turpentine, and pepper.

The seventh class includes those substances which favour the production of animalcules and promote putrefaction :—

Lime, charcoal, permanganate of potash, phosphate of soda, and ammonia.

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