Full accounts of the successful application of this procedure to the purification of deoxypentose nucleic acid preparations, especially from micro-organisms and from plants, will be published in due course.

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Action of Phytopathogenic Bacteria on Pectate Gel

MANY of the bacteria which cause diseases of plants attack their hosts, in the first instance, by breaking down the pectic substances of the middle lamella. This is particularly true of the soft-rot organisms and of those pathogens causing diseases of the parenchyma.

During the course of study on the bacterial die-back and canker of poplar[1], it has been found that the liquefaction of pectate gel is a sound criterion by which the pectolytic abilities of parasitic organisms may be demonstrated. Previous work[2,3] with pectate gel has been mainly confined to soft-rot organisms. By this present method, it has been possible to extend the use of this medium to other pathogens. This medium has the following advantages: (1) it sets rapidly; (2) the action of the bacteria is amplified by the presence of sodium asparaginate, which most of the organisms can utilize as an extra source of carbon and nitrogen; (3) no adjustment of *p*H is needed, provided that the sodium pectate used is neutral or slightly alkaline.

The medium was prepared as follows: 500 ml. distilled water was put into a one-litre beaker with a mechanical stirrer adjusted so that its speed remained constant during the whole process. It was heated with a bunsen burner, and when the water temperature reached 70° C., 15 ml. bromthymol blue followed by 5 gm. sodium pectate were added and the temperature kept constant for five minutes. When the temperature had dropped to 60° C., 2·5 ml. of 10 per cent calcium chloride in water, 0·5 gm. ammonium dihydrogen phosphate, and 1·0 gm. sodium asparaginate were added in succession. The temperature was kept constant for 10 min. The final *p*H of the mixture was between 7·0 and 7·2 (bluish-green) and no adjustment was therefore needed. The medium was then poured into tubes quickly, and autoclaved momentarily at 15 lb./sq. in. The tubes were placed standing in water at room temperature until the gel set in three to four days. They were then stored in a cool place.

A number of organisms, covering the four genera of bacterial plant pathogens, were inoculated by needle stabs into the medium.

The following species of the genus *Pseudomonas* were used: *Ps. syringæ*, *Ps. syringæ f. sp. populea*[1], *Ps. mors-prunorum*, *Ps. angulata*, *Ps. tabaci*, *Ps. medicaginis f.sp. phaseolicola* and the saprophyte *Ps. fluorescens liquefaciens*. All except *Ps. fluorescens* produced slight to moderate liquefaction and full thick liquid; the medium became alkaline. *Ps. fluorescens* did not liquefy the medium although it grew readily in it.

Of the genus *Xanthomonas* the following species were used: *X. campestris*, *X. citri*, *X. malvacearum* and *X. begoniæ*. The first two organisms produced moderate liquefaction and clear liquid, while the others produced slight thick liquefaction. In all cases the medium remained neutral.

All the species of *Corynebacterium* used, namely, *C. fascians*, *C. tritici*, *C. michiganense* and *C. flaccumfaciens*, produced slight to moderate liquefaction, thick liquid and slight alkalinity.

Different types of action were produced by pathogens belonging to the genus *Bacterium*. In the first type, *B. aroideæ*, *B. carotovorum* and *B. phytophthorum* produced moderate liquefaction, semi-transparent liquid and acid. In the second type, *B. salicis* produced less liquefaction, thicker liquid and no change in *p*H. In the third type, *B. tumefaciens* produced slight liquefaction, still thicker liquid and alkalinity. The saprophyte *B. lathyri* did not liquefy pectate gel.

It is suggested that the differences in the extent of liquefaction by the various organisms may be attributed to the nature and amount of pectic enzymes they secrete. Two enzymes may be concerned with the breakdown of the pectic salts present in the medium, namely, pectinase and protopectinase. While soft rot organisms secrete a large amount of both enzymes, saprophytic organisms, on the other hand, may secrete pectinase only. Vascular and hyperplastic organisms secrete very little protopectinase, as they do not depend, in their parasitism, on the breakdown of the middle lamella.

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Effect of Vitamin B_{12} on the Synthesis of Protein and Nucleic Acids in the Liver

IT is known that the cytoplasm content of the liver is determined by protein nutrition[1], and recently vitamin B_{12} has been shown to promote amino-acid assimilation[2]. A decrease in liver basophile cells (attributable to ribonucleic acid) is observed in rats deficient in vitamin B_{12}[3]. The vitamin also protects against hepatic damage during carbon tetrachloride intoxication, which causes a considerable reduction in the