

AGAR GEL CUTTER FOR IMMUNOELECTROPHORESIS

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Antigen wells and antiserum trough cut in agar gel films made on glass slides are an essential prerequisite for immunoelectrophoresis, but for accurate interpretation of the results, it is of paramount importance to have constancy in their size and to place them at specific distances from each other. Further still, the walls of the wells and the trough have to be vertical to ensure uniform diffusion of the antigens and antibodies in all directions. It requires a great deal of skill and experience to achieve these by manual techniques which in addition can lead to ragged edges. In order to overcome these difficulties, a device was assembled which is described below.

The device (Fig. 1) consists of two parts, (1) the "Cutting Portion" and (2) the 'Supporting Framework.' The "Cutting Portion" (Fig. 2) is composed of 2 stainless steel blades (B) 45 mm long, fixed parallel to each other at a distance of 2 mm by means of a perspex plate of suitable dimensions. Two brass tubes (T) with sharp edges having a diameter of 2.5 mm from the sides of the blades midway along their length, taking care that the cutting were fixed at a distance of 2.5 mm. edges of the blades and the brass tubes were in the same plane.

The 'Supporting Framework' consists of a platform (P) closed from the back and the sides and made of a suitable size to hold a 75 x 25 mm microscopic slide. The sides of this framework contained 2 iron springs, one on each side, which supported the 'Cutting Portion' in such a way that in the position of rest, the cutting edges of the blades and the blades and the brass tubes stood sufficiently clear of the platform.

A microscopic slide bearing the agar film can be placed on the platform and the 'Cutting Portion' pressed downwards. On releasing the pressure, the 'Cutting Portion' springs back to its original elevated position. The slide can then be taken out, the cut portions of agar removed and the slide subjected to immunoelectrophoresis.

COMMENTS

The material used for making this device was chiefly perspex sheets fixed together by means of araldite (Ciba) and chloroform. Perspex was considered to be a convenient material, but any other inert and resistant material could be used in its place. The blades have to be of stainless steel, otherwise formation of rust quickly spoils the cutting edges. The length of the cutting blades, diameters of the brass tubes and their distances from each other were determined by experimental trials. The size of the platform was adjusted just to contain a 75 x 25 mm microscopic slide. This ensures that the wells and the trough will be placed at almost identical places on subsequent slides. It is essential to lower the 'Cutting Portion' with a quick and clear jerk and release it immediately. This results in very clean cutting and prevents artefacts in the immunoelectrophoretic pattern. The device has been used in immunoelectrophoretic studies in our department and has proved to be satisfactory.

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