AN ELECTROPHORESIS CELL FOR ANALYSING FOUR SAMPLES SIMULTANEOUSLY

by

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A cell in which the descending electrophoretic boundaries of two samples could be observed simultaneously was described in a previous communication[1]. It has now been found feasible to run four samples at once in a cell embodying the same principles.

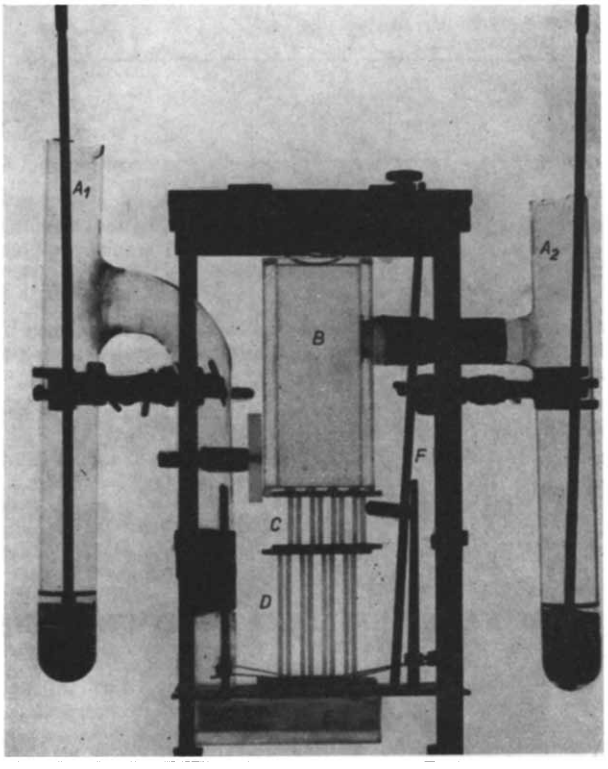

Fig. 1. Assembled four compartment electrophoresis cell. A_1 and A_2 are the electrode vessels with electrodes, B, open perspex adaptor, C, four compartment levelling section, D, four compartment analytical section, E, "perspex" adaptor and F, lever for moving levelling section transversely. The guides for the levelling section have been left out.

The accompanying photograph shows details of the new apparatus. Two electrode vessels communicate via two "perspex" adaptors with a four compartment glass electrophoresis cell. As in the two compartment apparatus a "cellophane" membrane is inserted between the lower "perspex" adaptor and the four compartment cell. The latter is separated from the upper "perspex" adaptor by a levelling section constructed of glass which has four short compartments matching those in the cell itself and which can be moved transversely. Initial boundaries are formed in the usual manner at the interface between the top of the cell and the bottom of the levelling section. The boundaries thus formed are lowered into suitable positions for observation and photography with the aid of a fine pipette with a bent tip[2]. Individual compartments are photographed by sliding the apparatus on its support across the field.

In Fig. 2 are given diagrams of the same rabbit serum analysed simultaneously in the four different compartments. The boundaries at η are due to accumulation of protein and salts at the cellophane membrane. As would be expected the diagrams are almost exactly identical.

We are much indebted to Messrs. Hilger and Watts for making the glass parts of the cell and lending them to this unit.

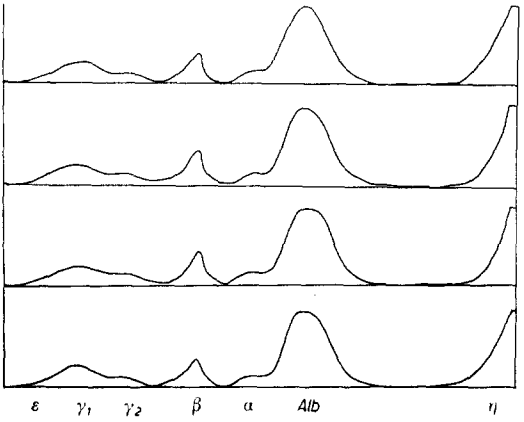

Fig. 2. Electrophoresis diagrams of the same rabbit serum analysed simultaneously in the four compartment cell. Electrophoresis time 150 minutes, Voltage gradient 5 volts/cm, Borate buffer pH 8.6.

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REFERENCES

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PHOSPHODIESTER LINKAGES IN PROTEINS

by

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As shown recently[1], prostate phosphatase liberates readily 40% of the phosphorus of α-casein but does not act on β-casein. This observation, together with the fact that prostate phosphatase in the pH range of 5.6 to 6.0 dephosphorylates monoesters of the type $-O-P\leqslant^{O}_{(OH)_2}$, indicates that the phosphorus in β-casein is present in a linkage different from that found in ovalbumin[2] and in α-casein[1]. As will be demonstrated below, β-casein contains the phosphorus in form of diesters.

The β-casein used in these experiments was kindly provided by Dr. THOMAS L. MCMEEKIN of the Eastern Regional Laboratories. The phosphodiesterase was prepared from rattle snake venom (*Crotalus adamanteus*) essentially according to SINSHEIMER[3]. These preparations contain as impurity 5-nucleotidase, an enzyme which does not act on proteins and therefore was not eliminated. However, care was taken that our preparations were free of proteolytic activity as tested with the aid of the hemoglobin method[4]. No proteolysis occurred at pH 5.6 and 8.2 during 24 hours.