substanzen ohne Bedeutung. Die Dünnschicht-Chromatographie auf Linienglas ist unseres Erachtens in erster Linie wegen ihrer Einfachheit und Billigkeit geeignet, mit Vorteil überall dort eingesetzt zu werden, wo es wünschenswert ist, sich über die Reinheit und Einheitlichkeit einer Substanz rasch zu informieren[4].

Summary. A modification of the thin layer chromatography on grooved chromatoplate is described, which reduces the usual equipment to a very simple and inexpensive extent.

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Classification of Micrococcus *(Staphylococcus aureus)* by Means of Differences in Electrophoretical Mobility of Extractable Proteins

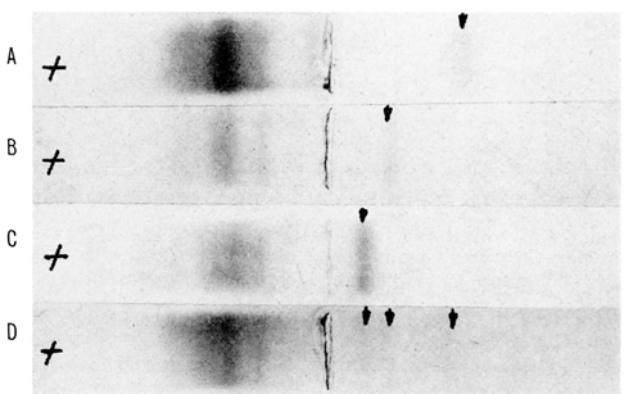
It is possible to classify *Staphylococcus aureus* by means of different biological and immuno-chemical reactions: phage-typing, agglutination and gel-precipitation have been used[1]. Corresponding to every individual immuno-chemical reaction, which is used specifically to the types of the bacteria, there must be a series of specific components in the micro-organism which probably possess differences in physico-chemical properties as well as differences in immunological properties. After the development of the electrophoretical technique for micro scale procedures (agar-gel-micro-electrophoresis)[2], it was therefore adjacent to try to demonstrate whether staphylococci containing non-identical immunological components revealed differences in the electrophoretical mobilities.

Material and Methods. The objects of the investigation were the three types, Cowan I, II, and III (phage-group I, II, and III). The bacteria were cultivated in agar medium for 24 h. The culture was scraped off and washed three times with saline (the bacteria being isolated each time by centrifugation at 10000 rpm). The culture from one plate was finally suspended into 10 ml buffer (9 ml 1/15 *M* KH_2PO_4 + 1 ml 1/15 *M* Na_2HPO_4). After 14 day's standing at room temperature, the suspension was centrifuged and the supernatant was subjected to an electrophoretical investigation after concentration by vacuum dialysis.

The agar-gel-micro-electrophoresis was performed as described by Wieme[2]. The protein pattern was stained by amido black, also as described by Wieme[2].

Results and Discussion. The Figure demonstrates the agar-gel-micro-electrophoresis of the extractable proteins from the three types of Cowan. Each type possesses, in the β-γ-area, a protein fraction specific of the type, but different in mobility from type to type. By pooling the three extracts from the three types, it is demonstrated that the three fractions have different mobilities.

Probably it is possible by means of differences in mobility of extractable proteins, revealed in agar-gel-micro-electrophoresis, to use this method for typing the bacteria. Thus this method could be used additionally to the typing by Cowan by means of agglutination and precipitation reactions[3,4], a method which has later been extended by modified immuno-chemical reactions[5–7,8]. It is quite reasonable that further differences between the different types of staphylococci can be revealed in agar-gel-micro-electrophoresis, especially in the fractions localized in the α-area, but the results from this area seem to be more difficult to interprete without an exact determination of the relative mobilities of the different fractions (as described by Wieme[2]).



Agar-gel-micro-electrophoresis of soluble proteins from Staphylococci from Cowan group I, II, and III. A: Cowan group II. This group of Staphylococci possesses the slowest moving γ-fraction. B: Cowan group I. This group of Staphylococci contains a γ-globulin-fraction with slow β-2-mobility. C: Cowan group III. This group of Staphylococci contains a distinct fraction with β-1-mobility. D: Cowan group I, II, and III pooled. All three fractions in the β-γ-area are visible.

Zusammenfassung. Mit Agar-Gel-Mikroelektrophorese war es möglich, typenspezifische Unterschiede in Mobilitäten von löslichen Proteinen der drei Typen, *Staphylococcus aureus*, «Cowan», zu demonstrieren. Diese Methode kann wahrscheinlich zur Typenbestimmung von Staphylococci und anderen Bakterien benützt werden.

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University Institute of Biochemistry, Copenhagen (Denmark), January 19, 1962.

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