gruppe unterscheiden. Der Substitutionstypus dieser beiden Alkaloide entspricht auf Grund der UV- und Protonenresonanzspektren demjenigen von Schizogalin bzw. Schizogamin, wobei Unterschiede in der Lage und Extinktion der UV-Maxima auf eine Behinderung der Konjugation bei den Alkaloiden der iso-Reihe hindeuten.

Im Gegensatz zu den bis jetzt erwähnten Alkaloiden ist das nur in den Blättern vorkommende Schizophyllin ein am N(a) unsubstituiertes Methoxy-indolinderivat, dessen IR-Spektrum statt einer Amid- eine Estercarbonylbande bei 5,78 $\mu$ enthält.

Tabernoschizin nimmt als sauerstofffreies Indolderivat im Rahmen der übrigen *Schizozygia*-Alkaloide eine Sonderstellung ein. Wie der Name andeuten soll, kommt dieses Alkaloid als Spurenalkaloid auch in Apocynaceen des Subtribus *Tabernaemontaninae* vor. Es erwies sich nämlich als identisch mit dem von uns früher aus *Conopharyngia durissima* isolierten Alkaloid E[7] und wurde inzwischen von uns auch in Blättern von *Conopharyngia holstii* aufgefunden. Summenformel und UV-Spektrum dieses Alkaloids könnten eine Beziehung zu Ulein[8] vermuten lassen. Im Gegensatz dazu enthält Tabernoschizin jedoch keine N-Methylgruppe und liefert beim Hofmannabbau kein Carbazolderivat.

*Summary.* From *Schizozygia caffaeoides* (Boj.) Baill. (Apocynaceae), one major and ten minor new alkaloids have been isolated and characterised. Most of them are N-acylindoline derivatives, partly with the hitherto unknown 5,6-methylendioxyindoline system. Some possible correlations between these alkaloids are discussed.

U. RENNER und P. KERNWEISZ[9]

*Forschungslaboratorien der J. R. Geigy AG, Basel (Schweiz), 6. Februar 1963.*

[7] U. RENNER, D. A. PRINS und W. G. STOLL, Helv. chim. Acta *42*, 1572 (1959).

[8] G. BÜCHI und E. W. WARNHOFF, J. Amer. chem. Soc. *81*, 4434 (1959).

[9] Den Herren Dres. H. FRITZ, R. W. SCHMID und H. WAGNER und ihren Mitarbeitern danken wir für Spektren und Mikroanalysen.

## Infective 'Ribonucleic Acid' Extraction from Poliovirus by Sodium Dodecylsulfate

Recently[1] it has been shown that heat, in presence of sodium dodecylsulfate (SDS), releases infective nucleic acid from foot and mouth disease virus. In order to establish whether this treatment could be applied to other RNA viruses, we tested it on a strain of type 1 polio virus.

*Methods and Materials.* HeLa cell cultures, at complete confluence ($10^6$ cells), maintained in a serum-free lactalbumine hydrolysate medium (0.5%) were infected with $10^8$ cytopathic units (CPU) of polio 1 (Brunenders).

| Treatment of polio 1 cultures after their cryolysis | CPE on HeLa cells | Minimum of suspended and infected cells necessary for transmission of CPE to HeLa cultures |
|---|---|---|
| 65°C | — | > 50,000 |
| 75°C | — | > 50,000 |
| 85°C | — | > 50,000 |
| 90°C | — | > 50,000 |
| 100°C | — | > 50,000 |
| 65°C + SDS | + | 1,843 |
| 75°C + SDS | + | 1,843 |
| 85°C + SDS | + | 5,530 |
| 90°C + SDS | + | 5,530 |
| 100°C + SDS | — | > 50,000 |
| 65°C + SDS + RNAse | — | > 50,000 |
| 75°C + SDS + RNAse | — | > 50,000 |
| 85°C + SDS + RNAse | — | > 50,000 |
| 90°C + SDS + RNAse | — | > 50,000 |
| 100°C + SDS + RNAse | — | > 50,000 |

The RNA nature of the infection was demonstrated with controls in which the viral extracts were treated at 20°C for 15 min with 0.5 $\gamma$/ml $\gamma$mol of RNAse before the addition to the cell sediments (for more details see the previous papers[1–3]).

After 12 h at 37°C from the infection, when the cells were completely destroyed, the cultures were frozen at −30°C and thawed at +20°C and then heated for 5 min at various temperatures in a medium containing, or not, 0.1% SDS and finally stored for less than 20 min at −30°C.

The infectivity of the extracted RNA was evaluated according to our modification[2] of the ELLEM and COLTER's method[3]: viral extracts were diluted 1/30 in a 0.8 *M* NaCl; 0.2 ml of this solution was added to a sediment of 200,000 HeLa cells, obtained from 2 days' stationary cultures trypsinized, washed in 0.85% NaCl and centrifuged.

After 15 min at 35°C (with continuous shaking), 1 ml of growth medium (Hank's balanced solution containing lactalbumine hydrolysate 0.5% and calf serum 5%) was added to the cells and the suspension so obtained was added to 2 days' HeLa cell cultures (kept at 37°C in tubes).

The cytopathic effect (CPE) was controlled every 24 h for 5 days at 35°C.

*Results.* The Table shows the infectivity of cultures infected with Polio 1, after cryolysis and heating at various temperatures in presence or not of 0.1% of SDS.

The cultures heated at 65°C to 90°C in presence of SDS are infective for HeLa cells; this infectivity is destroyed by RNase.

Heating in absence of SDS destroys the infectivity.

*Riassunto.* Il dodecilsolfato di Sodio (SDS) si è dimostrato capace di estrarre, se fatte o agire a temperature di 65°–90°C, acido ribonucleico infettivo da culture di cellule HeLa infettate con estratte da inocula massivi di poliovirus 1.

B. LODDO, B. SCARPA, and S. MUNTONI

*Istituto d'Igiene, Università di Cagliari (Italy), January 8, 1963.*

[1] H. L. BACHRACH, Proc. Soc. exp. Biol. Med. *107*, 610 (1961).

[2] S. MUNTONI, G. BROTZU, and B. LODDO, Boll. Soc. Ital. Biol. sperim., in press (1963).

[3] K. Ao. ELLEM and J. S. COLTER, Virology *15*, 113 (1961).