

decrease in proportion to the lowering in the rate of superficial evolution of CO₂.

B. N. SINGH.
P. B. MATHUR.

Institute of Agricultural Research,
Benares Hindu University,
June 24, 1937.

¹ Singh and Mathur, *Nature*, 1936, **137**, 704; *Curr. Sci.*, 1936, **5**, 76.

² Wardlaw and Leonard, *Ann. Bot.*, 1936, **50**, 621.

³ Wardlaw, *ibid.*, 1936, **50**, 655.

⁴ Smith, *Hilgardia*, 1929, **4**, 273.

Choline Ester Formation by Pancreas.

QUASTEL and his associates (1936)¹ have demonstrated the formation of Choline ester *in vitro* by the cortex of rat's and guinea-pig's brain. We have repeated their observations on dog's brain by following their technique and using frog's *rectus abdominis* as the test preparation. Our results show that dog's cortex forms choline ester at the rate of about 1 γ per gm. of fresh tissue per hour (calculated from the yield in 4 hours). We also found that dog's pancreas showed considerable activity in forming the choline ester producing about 0.25 γ per gm. of fresh tissue per hour (calculated from the yield in 4 hours).

Two important points emerged in our experiments on pancreas. First, that choline ester formation with or without oxygen was the same in the case of pancreas (in the case of brain, choline ester formation in the absence of oxygen was very much less); secondly in the absence of oxygen both the brain and the pancreas formed H₂S, the H₂S formation being greater in the case of the pancreas. We at the same time estimated the normal choline ester content of the pancreas and found that the amount present was less than what could be detected by the frog's *rectus muscle*.

We also estimated the choline esterase activity of the dog's pancreas and found that it was very high, being approximately twice as much as that of the brain cortex. Choline ester formation by a tissue so rich in its choline esterase activity is significant.

H. S. MAHAL.
B. B. DIKSHIT.

Haffkine Institute,
Parel, Bombay,
October 12, 1937.

¹ Quastel, J. H., *et al.*, *Biochem. J.*, 1936, **30**, 1068.

An Indirect Method of Estimating Cocaine in Mixtures of Cocaine and Novocaine.

It was thought desirable to discover a method by means of which cocaine could be rapidly estimated in mixtures of cocaine and novocaine, the latter being the usual adulterant of smuggled cocaine. The importance of such a method of estimation would be apparent from the study of the Dangerous Drugs Act.

We first tried to see how far Hankin's test for detecting cocaine could be utilised to throw light on the problem. With this object in view the sensitiveness of the test¹ was first studied and it was found that cocaine-permanganate crystals are obtained from mixtures of cocaine and novocaine only when cocaine is present to the extent of more than 5 per cent. It should be clear therefore that prosecution could be safely started if a seized sample gave the Hankin's test by direct treatment, for according to the Dangerous Drugs Act if a sample contains more than 0.1 per cent. of cocaine it may be considered to be a dangerous drug.

It was thought that the determination of the melting points of cocaine-novocaine (hydrochloride) mixtures might give some indication about the percentage of cocaine present. With this object in view melting points of mixtures of cocaine and novocaine hydrochlorides were taken. These results are given below and also outlined in the accompanying graph.

Cocaine Hydrochloride per cent.	Novocaine Hydrochloride per cent.	M. P. ° C.
99	1	188-89
98	2	186-87
97	3	184-86
96	4	181-84
95	5	179-81
91	10	170-78
85	15	155-76
80	20	151-72
70	30	151-68
60	40	149-64
50	50	147-56
40	60	145-54
30	70	144-49
20	80	140-45
10	90	147-48
5	95	147-50
1	99	150-54