

We have been able to develop fingerprints on many kinds of paper, some of which had not been touched for a long time. Fig. 1 shows part of a page of a French grammar which had not been used for twelve years. The owner's fingerprint can be compared with a fresh print developed on sized paper.

We are investigating the ninhydrin reacting compounds in fingerprints and perspiration. Fingerprints have also been made visible with *Amidoschwartz* (Bayer) or other reagents used for the localization of protein spots in paper electrophoresis. This indicates the presence of proteins, probably keratin.

All the details and applications of the method have not been worked out yet; but a full account of problems related to it will be published elsewhere. Part of this work has been carried out at the Institute of Biochemistry, Uppsala, and we are indebted to Prof. A. Tiselius for valuable discussions.

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<sup>1</sup> Levy, A. L., and Chung, D., *Anal. Chem.*, **25**, 396 (1953).

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### Occurrence and Distribution of Sarcosine in the Rock Lobster

THE unidentified amino-acid found by us in the rock lobster (*Jasus lalandii*)<sup>1</sup> has been shown to be sarcosine. We are indebted to Mr. R. G. Westall for suggesting that our unknown might be sarcosine and for sending us an authentic sample for comparison.

We had previously considered this possibility, but had rejected it because the  $R_F$  values of the unidentified amino-acid in phenol and butanol-acetic acid were appreciably different from the values reported for sarcosine in the literature<sup>2,3</sup> and because it did not give the colour test with *p*-nitrobenzoylchloride described for sarcosine by Plattner and Nager<sup>2</sup>. However, the test also gave negative results with sarcosine in our hands, and a direct comparison of the  $R_F$  values of the unknown and sarcosine in different solvents showed them to be identical, as may be seen from the following figures:

Solvent	$R_F$		
	Unknown	Sarcosine Found	Literature
Phenol - water (70 : 30)	0.88	0.88	0.80 (ref. 2) 0.78 (ref. 3)
Butanol - acetic acid - water (40 : 10 : 23)	0.19	0.19	0.24 (ref. 3)
Lutidine - water (3 : 1)	0.21	0.21	—

The difference between our  $R_F$  values and those of other workers may be due to the fact that our chromatograms were of necessity run at 30°.

Final proof of the identity of the unknown was obtained by isolating sarcosine from rock lobster hepatopancreas extract by fractionation on a sulphonated polystyrene resin (nominal divinyl benzene con-

tent 4½ per cent)<sup>4</sup>. The fraction containing sarcosine plus aspartic and glutamic acids, asparagine, proline, serine and threonine was chromatographed on a cellulose column using phenol-water (70 : 30) as solvent, and a fraction was obtained which contained only sarcosine and proline. This was crystallized from methanol-acetone<sup>5</sup> to give chromatographically pure sarcosine, melting point 210.5-211.5° (decomp.), undepressed on admixture with the authentic sample. An examination of the infra-red spectra confirmed the identity of the two samples.

Appreciable amounts of sarcosine have been found in trichloroacetic acid extracts of the hepatopancreas and blood of the rock lobster; but only traces were found in the muscle extracts. Hydrolysates of the hepatopancreas, blood and muscle proteins did not contain detectable amounts of sarcosine. The distribution of other amino-acids in the muscle and hepatopancreas extracts will be reported elsewhere.

We are aware of only two previous reports of the occurrence of sarcosine in the animal kingdom. It was isolated from the starfish *Astropecten* by Kossel and Edlbacher<sup>5</sup> in 1915, and it has recently been found in elasmobranch fishes by Shewan<sup>6</sup>. We have also found it in the freshwater crab *Potamon (Potamonantes) perlatus/sydneyi*, and we plan to look for it in other invertebrates.

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<sup>4</sup> Shewan, J. M., Fletcher, L. I., Partridge, S. M., and Brimley, R. C., *J. Sci. Food Agric.*, **3**, 394 (1952).

<sup>5</sup> Kossel, A., and Edlbacher, S., *Hoppe-Seyl. Z.*, **94**, 264 (1915).

<sup>6</sup> Rep. Food Invest. Board, London, 39 (1952).

### Milk Ejection resulting from Mechanical Stimulation of Mammary Myoepithelium in the Rabbit

THERE is good experimental evidence in the rabbit<sup>1,2</sup> that the normal removal of milk from the maternal mammary glands during suckling depends on a reflex release of oxytocin from the posterior pituitary gland. Histological studies<sup>3,4</sup> indicate that the oxytocin induces contraction of the mammary myoepithelium, which results in the expulsion of the milk stored in the alveoli and ducts. The present experiments, which were carried out with twelve lactating rabbits, disclosed a subsidiary mechanism of milk ejection which may help to explain the small variable amount of milk yielded to the young when posterior pituitary activity is prevented by denervation of this gland, by anaesthesia<sup>1</sup>, and by emotional excitement<sup>5</sup>.

The animals were suckled by their litters prior to the experiments. They were anaesthetized with ethanol-urethane<sup>6</sup>, the abdomen shaved and a single teat duct of one mammary gland cannulated. Up to 5 ml. of normal saline at 37° C. was introduced through the cannula until the gland segment served by the cannulated duct was sufficiently distended to