(*a*) When GOT, previously incubated for 10 min at 37°C with the optimal amount of Py-5-P (Fig. 2), is reincubated with KCN in large excess (10^{-2} *M*), for 25 min at 37°C, in phosphate buffer 0·05 *M*, pH 7·4, and subsequently dialysed for 12 h against the same buffer, the enzymatic system shows the same activity as that shown in similar experiments without KCN, simultaneously run.

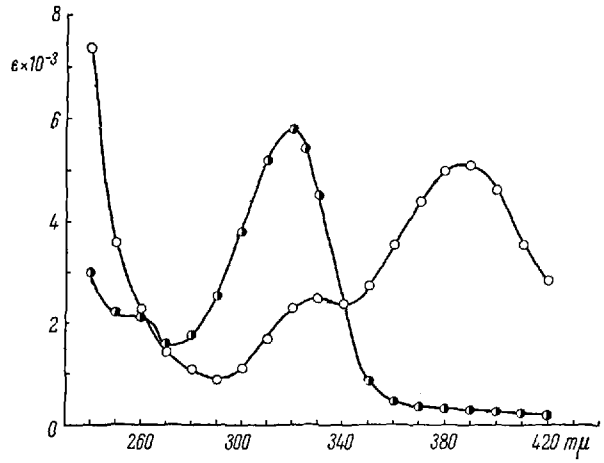

Fig. 1. – Absorption spectra at pH 7·4: o–o, pyridoxal-5-phosphate; •–•, pyridoxal-5-phosphate after reaction with equivalent KCN.

(*b*) The Py-5-P, after reaction with KCN in stoichiometric amounts, fails to activate the apotransaminase. Further, its addition even in seven fold excess (either simultaneously or after Py-5-P) to the resolved GOT does not modify the activation effect due to increasing amounts of Py-5-P, at least in our experimental conditions.

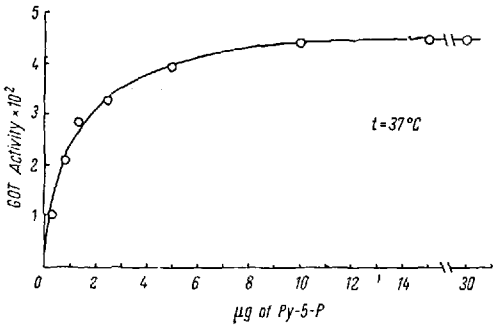

Fig. 2. – GOT activity as a function of pyridoxal-5-phosphate added to the incubation mixture containing 1 ml of the 1:20 enzyme solution. GOT activity × 10^2 equal to one corresponds to 0·034 μMoles oxaloacetate formed by 1 mg protein per minute.

A role of 4-formyl group quite different from that suggested by SCHLENK and FISHER[2] may be inferred from our results. It seems, indeed, that the 4-formyl group must be involved in the attachment of the coenzyme to apotransaminase rather than in the formation of a Schiff base with aminoacid substrate.

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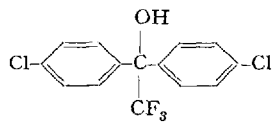
Riassunto

Vengono descritte indagini sull'interazione tra piridossal-5-fosfato e KCN. Il composto di addizione non attiva l'apotransaminasi, ma neppure compete con il piridossal-5-fosfato.

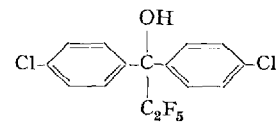
I risultati lasciano intravedere che il gruppo carbonilico di quest'ultimo sia interessato nell'attacco del coenzima stesso all'apoenzima.

Reduced Oviposition in *Aedes aegypti* L. Following Tarsal Exposure to a Fluorocarbon[1]

It has been shown recently[2] that di-(*p*-chlorophenyl)-trifluoromethylcarbinol (I) and di-(*p*-chlorophenyl)-pentafluoroethylcarbinol (II) synthesized by BERGMANN *et al.*[3] reduce substantially or even inhibit completely oviposition in the housefly upon tarsal contact.



I



II

Although II was pronouncedly better as an 'O.I.T.C.-agent' in houseflies on continuous exposure[2] than I, in the present work on *Aedes aegypti*, the more readily available I was employed. It was soon found that mosquitoes kept in continuous contact with deposits of I showed even at very low concentrations either an enhanced mortality due to the slight toxicity of the compound[4], or refused to take their blood meals. Therefore, tarsal contact of short duration followed by a single blood meal was found to be the method of choice.

The number of eggs deposited by *Aedes aegypti* after a single blood meal depends on sufficient larval diet[5], on fertilization of the females[6] and on the amount of blood ingested[7]. Accordingly, 4–5 days old females were taken out from mixed population cages[8] of *Aedes aegypti* bred from well-fed larvae and kept at 28°C, 80% R.H. on 10% glucose. The females were exposed at 24°, under an inverted glass funnel to a deposit of 1 g/sq.m. I on filter paper, exposure times being 10, 20, 30 and 40 min. After the exposure, they were returned to 28°, starved for 20–24 h and then were allowed to feed for 3 h on 'Nembutal'-immobilized guinea pigs. All engorged females

[1] The abbreviation O.I.T.C.-agents (oviposition-inhibiting tarsal contact agents) is suggested for compounds reducing or inhibiting oviposition in insects upon tarsal contact.

[2] K. R. S. ASCHER, Science *125*, 938 (1957).

[3] E. D. BERGMANN, A. S. TAHORI, A. KALUSZYNER, and S. REUTER, Nature *176*, 266 (1955). – A. KALUSZYNER, S. REUTER, and E. D. BERGMANN, J. Amer. chem. Soc. *77*, 4164 (1955).

[4] S. REUTER and K. R. S. ASCHER, Exper. *12*, 316 (1956).

[5] F. WEYER, Arch. Schiffs- u. Tropenhyg. *38*, 394 (1934). – M. MATHIS, Bull. Soc. Pat. exot. *36*, 640 (1938). – W. W. MACDONALD, Ann. trop. Med. Parasit. *50*, 399 (1956).

[6] J. D. GILLET, Nature *176*, 124 (1955). – J. D. GILLET, Ann. trop. Med. Parasit. *50*, 362 (1956). – C. A. LANG, Amer. J. trop. Med. Hyg. *5*, 909 (1956). – R. C. WALLIS and C. A. LANG, Mosquito News *16*, 283 (1956).

[7] D. N. ROY, Bull. ent. Res. *27*, 423 (1936). – P. A. WOKE, Amer. J. trop. Med. *17*, 729 (1937). – P. A. WOKE, M. S. ALLY, and C. S. ROSENBERGER, Ann. ent. Soc. Amer. *49*, 435 (1956).

[8] D. R. SEATON and W. H. R. LUMSDEN, Ann. trop. Med. Parasit. *35*, 23 (1941), found that 82% of females in cages had mated 72 h after emergence.

were divided in groups of 10 (Series I) or groups of approximately 25 (Series II) into small cages and equal numbers of males were added. Finally the cages were provided with glucose-solution and an oviposition surface (wet cotton wool covered with a disk of filter paper in a small Petri-dish).

Exposure times up to 40 min caused neither an initial k.d. nor a significant 24 h mortality. Feeding was not inhibited (the mean ingested quantity of blood in treated groups and controls was found to be 2·0 mg), nor was there any difference in mean longevity. Longer exposure than 40 min, however, irritated the mosquitoes and prevented adequate feeding.

Results.—Results are summarized in the Table. Series I is based on 5 × 10 ♀ for each exposure time and for control, while series II was carried out with two groups of approximately 25 ♀ for each experimental arrangement. Females dying within three days after exposure were excluded from the calculations, since oviposition started on the third to fourth day after the blood meal.

	Series I		Series II	
	Combined mean no. of eggs/♀	Mean longevity of females, days	Mean no. of eggs/♀ Group 1	Group 2
Control	61·0	12·9	59·6	65·2
10 min	62·3	13·2	58·4	62·8
20 min	47·2	12·2	52·3	48·7
30 min	29·5	12·5	33·8	35·1
40 min	27·2	12·1	30·6	36·0

Repeating these experiments with the 'one female per cage'-method of WOKE *et al.*[9], it was found that at an exposition time of 30 min only 10 ♀ out of 32 layed eggs (31%), while in controls, 34 ♀ out of 44 (i.e. 77%) deposited eggs.

Unfortunately, rather protracted similar experiments with DDT-resistant strains of *Anopheles stephensi* List. and *Anopheles m. atroparvus* Thiel, using for short-time exposure a magnified form of the BUSVINE-NASH technique[10] followed by two blood meals (one blood meal not insuring oviposition), did not yield reproducible results.

A full account of this work will be published in the *Rendiconti dell'Istituto Superiore di Sanità.*

Acknowledgement. I wish to express my thanks to Dr. E. MOSNA and Dr. S. BETTINI for help, advice and laboratory facilities afforded at the Laboratorio di Parassitologia, Istituto Superiore di Sanità, Roma and to the Direzione Generale delle Relazioni Culturali con l'Estero, Roma, for a research scholarship.

K. R. S. ASCHER

Laboratorio di Parassitologia, Istituto Superiore di Sanità, Roma, August 1, 1957.

Zusammenfassung

Durch Tarsalkontakt während 30–40 min mit Di-(*p*-chlorphenyl)-trifluormethylkarbinol, 20–24 h vor einer einzelnen Blutmahlzeit, konnte der Prozentsatz eierlegender Gelbfiebermückenweibchen gegenüber der Kontrolle um mehr als die Hälfte reduziert und dadurch die Zahl der abgelegten Eier auf etwa 50% herabgesetzt werden.

[9] P. A. WOKE, M. S. ALLY, and C. S. ROSENBERGER, Ann. ent. Soc. Amer. *49*, 435 (1956).

[10] J. R. BUSVINE and R. NASH, Bull. ent. Res. *44*, 371 (1953).

Distribution of DNA and RNA in Different Regions of Cat's Brain

Nucleic acids play one of the most important roles in cell metabolism (e.g. in synthesis of specific protein-enzymes). Furthermore, recent investigations strongly suggest that nucleoproteins are consumed and regenerated by the nerve cells in response to increased functional demands[1]. Since the morphological structure of various parts of the central nervous system (CNS) is different, their metabolic or functional activities may also be supposed to differ significantly. Therefore, the deoxyribonucleic acid (DNA) and ribonucleic acid (RNA) content of the total brain cannot be considered as an adequate index of the metabolism of these substances in different regions of the CNS.

Region of the brain	No. of animals	DNA γ/10 mg of dried tissue	No. of animals	RNA γ/10 mg of dried tissue
Frontal cortex	8	32·0 ± 2·4	9	299·0 ± 27·6
Occipital cortex	8	31·5 ± 3·1	9	303·4 ± 28·7
Temporal cortex	9	29·3 ± 2·7	9	305·6 ± 11·0
Hippocampus	9	30·7 ± 2·4	8	290·3 ± 27·8
Cerebellar cortex	7	49·2 ± 5·6	8	337·6 ± 23·9
Cerebral white matter	6	34·3 ± 4·0	7	148·8 ± 11·4
Caudate nucleus	7	36·7 ± 3·5	9	282·2 ± 19·1
Thalamus	7	34·2 ± 3·6	9	232·4 ± 22·7
Hypothalamus	6	41·8 ± 3·3	5	265·0 ± 23·1
Midbrain	6	32·5 ± 3·8	9	206·1 ± 15·1
Pons	8	31·0 ± 3·0	9	168·0 ± 19·3
Medulla	9	31·2 ± 3·3	7	170·1 ± 7·4
Spinal cord	8	26·8 ± 3·3	8	140·2 ± 11·1

Since the cat is an animal of choice in investigating the functions of the CNS, the study of DNA and RNA distribution in different regions of cat's brain has been undertaken in the belief that such data might be useful for further study of the functional alterations, possibly associated with changes of these nerve cell constituents, under various experimental conditions. Adult cats have been used in the experiments. Immediately after decapitation the brain has been removed from the skull, the pia mater has been taken off and the regions of the brain (indicated in the Table) have been separated by means of a careful dissection. Phospholipids were extracted using ethanol-ether mixture (3:1). Two extractions were done, each lasting 20 min. The residues of the brain tissue samples were washed in ethanol and then dried for 48 h *in vacuum*. All these procedures have been carried out in the cold. The extractions of DNA and RNA were performed according to the method of SCHNEIDER[2], and concentrations determined by CERIOTTI's method[3] for DNA, and MEJBAUM's method[4] for RNA.

Results are presented in the Table. As can be seen, the amounts of the DNA are of the same order in most of the regions investigated. Somewhat higher concentrations of DNA in cerebellar cortex and hypothalamus are probably due to the differences in total number of cells present in these parts of CNS. The white matter of the brain contained approximately the same amount of

[1] S.-O. BRATTGARD and H. HYDEN, Acta radiol. [Suppl.] 94 (1952). – L. BAKAY and O. LINDBERG, Acta physiol. scand. *17*, 179 (1949).

[2] W. C. SCHNEIDER, J. biol. Chem. *161*, 293 (1945).

[3] G. CERIOTTI, J. biol. Chem. *198*, 297 (1952),

[4] W. MEJBAUM, Hoppe-Seylers Z. *258*, 117 (1939).