mit der Schlundsonde verabreicht. Die KSt.-Bestimmung erfolgte täglich bis zu 5 Tagen.

Tabelle I. Einfluss von schwefliger Säure auf die C-17-Ketosteroidausscheidung

Tage nach Versuchsbeginn	Zweimal 5 cm³ SO_2 (50 mg/l) am 1. Tag Abweichung der KSt.-Ausschüttung in Prozent vom normalen Mittelwert	
	1. Serie	2. Serie
1	– 17,4 N.	– 1,2 N.
2	+ 100,2	+ 94,7
3	– 0,2 N.	+ 4,0 N.
4	– 4,0 N.	+ 5,2 N.
5	– 1,0 N.	+ 6,5 N.

N. = Normbereich

Schweflige Säure bewirkt demnach an dem auf die Applikation folgenden Tag einen deutlichen Anstieg der KSt.-Ausscheidung.

Da Äthanol allein die KSt.-Ausschüttung nicht erhöht, nach den Untersuchungen von LAVES[1] aber einen Cortisoneffekt bremst, wurde den Versuchstieren am 1. Versuchstag zweimal 5 cm³ einer 12%igen Lösung von Äthanol in schwefliger Säure (50 mg SO_2/l) wie oben oral verabreicht und täglich die KSt.-Ausscheidung gemessen.

Tabelle II. C-17-Ketosteroidbestimmung nach Gaben von Äthanol und schwefliger Säure

Tage nach Versuchsbeginn	Abweichung der KSt.-Ausscheidung in Prozenten vom normalen Mittelwert	
	1. Serie	2. Serie
1	– 31,4	– 29,2
2	+ 23,0	+ 24,4
3	+ 8,7 N.	+ 7,5 N.
4	+ 4,0 N.	+ 4,5 N.
5	– 6,0 N.	+ 0,3 N.

N. = Normbereich

Die gleichzeitige Gabe von Äthanol und schwefliger Säure führt anfänglich zu einer geringen, den Normbereich unterschreitenden KSt.-Ausscheidung. Am 2. Versuchstag liegen die Werte dann wenig über dem Normbereich. Da nach den früheren Beobachtungen orale Weingaben zu einer deutlichen Mehrausschüttung führen – ein Ergebnis, das in keinem Verhältnis zu den oben wiedergegebenen Werten steht –, müssen noch andere Faktoren als schweflige Säure für den Stresseffekt verantwortlich sein. Andererseits ist aus den oben beschriebenen Versuchen zu entnehmen, dass Äthanol den durch Gaben von schwefliger Säure hervorgerufenen Stresseffekt bremst. Dieses Resultat steht in Einklang mit demjenigen von LAVES[1] über den Antagonismus von Äthanol und Cortison.

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Hygiene-Institut der Universität Mainz, den 7. Februar 1955.

Summary

Ethanol lessens the stress effect which is produced by application of sulphureous acid.

[1] W. LAVES, Arch. exp. Path. Pharmakol. *222*, 482 (1954).

On the Vasopressor and Antidiuretic Activities of Synthetic Oxytocin

DU VIGNEAUD and his co-workers[1] identified their synthetic product with the natural oxytocic principle in different tests, such as: fowl blood-pressure, rat uterus test, induction of labour in humans, and finally milk ejecting action. The question of whether hypophysis posterior-lobe hormones are similar or identical agents and whether the differences existing between them are of qualitative or quantitative nature, has been widely discussed in the literature. As a result of newer investigations[2], the oxytocic and vasopressor peptides are found to differ from each other in their amino acid contents, lysine or arginine being characteristic for the vasopressor hormone. This statement led us to the question of idea whether interconnection may exist between the presence of the amino acids mentioned above and the vasopressor activity.

In order to clear up this question, we examined a sample of oxytocic octapeptide synthesized according to DU VIGNEAUD's method for its vasopressor and antidiuretic activities. (This preparation was not subject to Craig's counter-current purification process.) As standard was chosen the posterior-lobe extract standard powder of the State Institute for Public Health, Budapest, which is assayed by the guinea-pig uterus method. Determination of the vasopressor activity was carried out on decapitated cats (four point assay) that of the antidiuretic activity on rats (six point assay)[3]. The oxytocic activity of the preparation was measured by the fowl blood-pressure method.

The synthetic oxytocin examined proved to have an antidiuretic activity of 0·067 ± 0·00825 (S.E.) U. for each oxytocic unit (mean of 4 experiments) and a vasopressor activity of 0·032 ± 0·0031 (S.E.) U. for each oxytocic unit. (Mean of 6 experiments.) The difference between these two relative values is statistically significant ($p < 0{\cdot}01$).

We conclude, therefore, that the vasopressor and antidiuretic activities of the synthetic oxytocin which measured about 1/15 to 1/30 of the oxytocic activity concerned are independent of the arginine or lysine content of such polypeptides. Our results are not in accordance with those of LAWLER and DU VIGNEAUD obtained with a purified natural oxytocin; their preparation had an antidiuretic activity of less than 0·001 U./oxytocic unit and was entirely lacking in vasopressor activity[4]. On the other hand, purified arginine and lysine vasopressins show a 1/6–1/20 oxytocic activity according to the test employed.

On the grounds of these facts, we must assume that either the identity of the synthetic and natural oxytocin still remains questionable, or that the different quantitative and qualitative activity-relations between the posterior-lobe hormone are not yet clearly determined, in spite of the possession of synthetic products.

The authors are greatly indebted to Drs. M. BODÁNSZKY, M. SZELKE, A. TÖMÖRKÉNY, and E. WEISS who have prepared and supplied the synthetic oxytocin used in these experiments.

L. GYERMEK and GY. FEKETE

Department of Pharmacology, Pharmaco-industrial Research Institute Budapest, January 30, 1955.

[1] V. DU VIGNEAUD, C. RESSLER, I. M. SWAN, C. W. ROBERTS, and J. KATSOYANNIS, J. Amer. Chem. Soc. *76*, 3115 (1954).

[2] C. H. LAWLER, V. DU VIGNEAUD, and E. A. POPENOE, J. Amer. Chem. Soc. *75*, 48, 80 (1953).

[3] J. H. BURN, *Biological Standardization* (Oxford, 1950).

[4] C. H. LAWLER and V. DU VIGNEAUD, Proc. Soc. Exp. Biol. Med. *84*, 114 (1953).

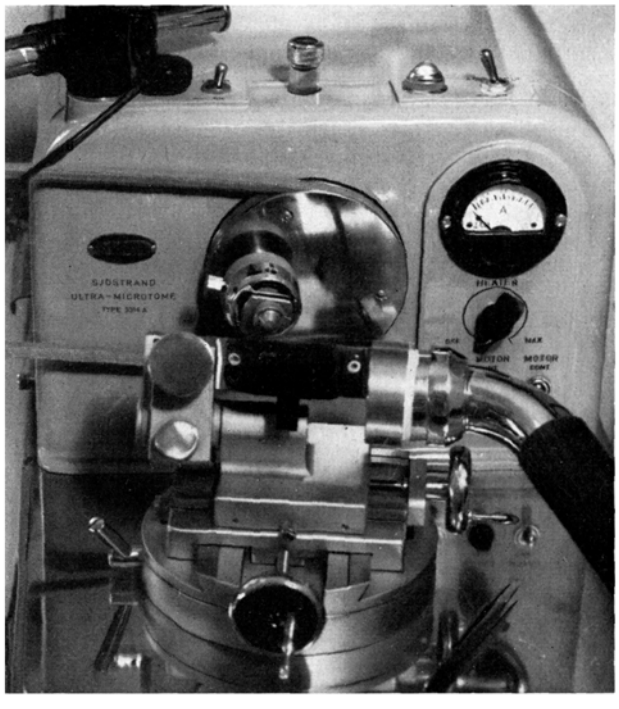
Zusammenfassung

Synthetisches Oxytozin hat auch vasopressorische und antidiuretische Wirkungen, die etwa 1/30 und 1/15 der oxytozischen Aktivität ausmachen. (Hochgereinigte natürliche Oxytozin-Präparate haben nach LAWLER und DU VIGNEAUD kaum solche Eigenschaften.) Die Differenz zwischen synthetischem und hochgereinigtem Oxytozin weist in dieser Hinsicht darauf hin, dass diese nicht identisch wären.

PRO EXPERIMENTIS

Larger Section Areas for Electron Microscopy by Aid of Ultrasonics

Well established section techniques for 200 Å section thickness in electron microscopy (SJÖSTRAND[1], *inter alia* 1954) require a careful treatment of the object block to prepare a small cone for sectioning. In rare cases it is desirable to increase the section area, particularly when very large cells are concerned e.g. the salivary gland cells of *chironomus*. To proceed 50 μ into the tissue structure perpendicular to the level of the first section, about 2500 sections have to be cut, even though only about 10% of such series are actually studied in the electron



microscope. If the ratio of the size of the object of interest – the tissue detail – to the tissue volume is very low, large survey sections seem to be of greater advantage than many small sections into the depth of the tissue. Because section quality rapidly decreases when the section area is increased, an ultrasonic generator was fitted to the knife holder of a SJÖSTRAND microtome (Figure) vibrating the knife in a transversal direction, thus allowing one to section up to 1·5 mm² blockface area without endangering the section quality. Unavoidable oscillations of the knife toward and away from the object block had no visible influence on section smoothness. Obviously the magnitude of such vibration effects do not exceed the practical resolution power of the electron microscope. The figure demonstrates the arrangement at the microtome. On the right side can be seen the handle with the vibration head (Sonostat 812, Siemens-Reiniger, Erlangen), which generates 800 Khz at – for our purpose – 1 watt/cm². The vibration head is held by a brass cup in which contact of the vibrating surface and the cup bottom is effected by a layer of thick oil. The brass cup in turn is tightly screwed on to the knife holder.

The above described arrangement seems to be advantageous even when harder materials are to be sectioned. We are indebted to the Elema Company, Stockholm, for kindly putting the Sonostat at our disposal.

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Zusammenfassung

Um in besonderen Fällen die Schnittflächengrösse in der Schneidetechnik für die Elektronenhistologie erhöhen zu können, wurde mit Erfolg das Mikrotommesser in seiner Längsachse in Ultraschallschwingungen versetzt.

PRO EXPERIMENTIS

A Modified Petri Dish Method for Rust Infection of Excised Leaves

The use of Petri Dishes for culturing rust fungi on detached leaves has been recommended and attempted by many investigators with varying degree of success. The literature on detached leaf culture in all its aspects has been reviewed by YARWOOD[1]. Depending upon the purpose of investigation numerous variants of the Petri dish method have been suggested. CRAIGIE[2] used the method of suspending the infected plant parts (culms, leaves, twigs, etc.) over the healthy host plants for demonstrating heterothallism in rust fungi. The writer has used with moderate success a modification of CRAIGIE's method by using detached leaves in Petri dishes. He has studied the sex behaviour of rust fungi like *Scopella gentilis* (Syd.) Mund. and Thirum. on *Mimusops hexandra* Roxb. (Sapotaceae) and *Puccinia thwaitesii* Berk. on *Justicia gendarussa* Burm. (Acanthaceae) by this modified Petri dish method. As far as the writer is aware the method of using excised leaves in Petri dishes for studying sex-behaviour of rust fungi has not been attempted so far.

Leaves of the plant of which the rust is to be studied are preferably detached in the afternoon so that the carbohydrate, protein and mineral contents may be higher and the leaves consequently may remain in fresh condition longer (YARWOOD[1]). The rusted leaves are collected earlier for testing the viability of the teliospores

[1] F. S. SJÖSTRAND, Z. wiss. Mikroskop. *62*, 65 (1954).

[1] C. E. YARWOOD, Bot. Rev. *12*, 1 (1946).

[2] J. H. CRAIGIE, Phytopathology *21*, 1013 (1931).