Ces recherches font partie d'un travail subsidié par l'Institut pour l'encouragement de la Recherche scientifique dans l'Industrie et l'Agriculture I.R.S.I.A. (bourse de spécialisation).

J. M. DENUCÉ

Laboratoire de morphologie animale, Université Libre de Bruxelles, le 31 octobre 1951.

Summary

Silk glands of *Bombyx mori* contain an acid phosphomonoesterase with optimal activity at pH 4,2–5,0. An alkaline pyrophosphatase was found to be active at pH 7,96.

Prolongation of Clotting Time in Hibernation

One of the authors, SUOMALAINEN, has long been aware of the slow rate of blood coagulation in the hibernating hedgehog. Sometimes the clotting takes several days. Therefore, the clotting time of the blood was determined in different physiological conditions in the hedgehog, using the glass capillary method. Blood samples were taken from normal hedgehogs in the latter half of September and in October. The period of hibernation actually began at the end of November. The hibernating animals were examined in December and January. Their body temperature varied between + 6·6° and 10·8°C.

The hedgehog is also brought into artificial hibernation by injecting insulin into it and keeping the animal in the cold (SUOMALAINEN[1]). In this investigation artificial hibernation was induced in late October. The body temperature of the hedgehogs in artificial hibernation varied between + 7·2° and 11·5°C.

Hedgehogs that had been awakened from hibernation were examined in the latter half of January. The animals were awakened by bringing them from the cold to room temperature. The blood samples were taken some 24 hours after awakening.

The mean blood clotting times are shown in Table I.

Table I

The mean blood clotting time in the hedgehog

	+ 10°C	+ 20°C	+ 36°C
Normal hedgehog . .	5′10″	3′15″	2′25″
Hibernating hedgehog	10′50″	6′35″	4′15″
Artificial hibernation .	7′10″	4′50″	2′55″
Woken from hibernation	6′10″	4′10″	2′45″

As is seen from the Table, the blood clotting time is markedly prolonged during hibernation. In artificial hibernation it is also prolonged; in animals that have been awakened from hibernation it is, on the other hand, nearer to the normal values.

In seeking causes for these variations we have taken account of the variation in numbers of the heparin-secreting heparinocytes, or Ehrlich's mast cells, in hedgehogs at different times of the year. As appears from the communication previously published in this periodical (SUOMALAINEN and HÄRMÄ[2], cf. also HÄRMÄ and SUOMALAINEN[1]), the number of heparinocytes is great in the small intestine of the hedgehog and in the lungs round the bronchioles (Table II).

Table II

Relative heparinocyte content of the small intestine and bronchioles in the hedgehog. Each figure represents the mean of three hundred unit areas.

	Small intestine	Bronchioles
Normal hedgehog	4·8	30·5
Hibernating hedgehog . .	18·1	79·3
Woken from hibernation .	11·0	72·1

The Tables show that both the blood clotting time and the number of heparinocytes have increased during hibernation. On the basis of these observations and the histological picture of the heparinocytes it seems justifiable to assume that increased heparin secretion is one cause of the prolongation of the clotting time during hibernation.

The retardation of the clotting time is a marked adaptation to the dormant state. The heart beat in hibernation is slow and weak, with the result that the circulation of the blood is retarded (SUOMALAINEN and SARAJAS[2]). Therefore the danger of thrombosis is great in hibernation. In an active state, on the other hand, the blood must coagulate rapidly, in order to prevent too great a loss of blood from any wounds.

It is interesting that SVIHLA, BOWMAN and RITENOUR[3] have recently observed a corresponding prolongation of blood clotting time in two American ground squirrels (*Citellus*) during summer dormancy.

A more detailed account of these investigations will be published in the periodical Archivum Societatis Zoologicae Botanicae Fennicae «Vanamo».

P. SUOMALAINEN and EILA LEHTO

Zoological Laboratory, Helsinki University, Helsinki, Finland, November 22, 1951.

Zusammenfassung

Das Blut eines winterschlafenden Igels gerinnt viel langsamer als das eines Sommerigels. Eine Ursache hierfür ist die gesteigerte Heparinsekretion während des Winterschlafes. Die Verlängerung der Gerinnungszeit ist eine bemerkenswerte Anpassung an den Lethargiezustand. Da die Herztätigkeit im Winterschlaf stark herabgesetzt und der Blutkreislauf verlangsamt ist, ist die Gefahr für Thrombosen im Winterschlaf groß.

[1] P. SUOMALAINEN, Ann. Acad. Sci. Fenn. A *53*, 7 (1939).
[2] P. SUOMALAINEN and R. HÄRMÄ, Exper. *7*, 380 (1951).

[1] R. HÄRMÄ and P. SUOMALAINEN, Acta physiol. Scand. *24*, 90 (1951).
[2] P. SUOMALAINEN and S. SARAJAS, Ann. Zool. Soc. «Vanamo» *14*, 2 (1951); Nature, *168*, 211 (1951).
[3] A. SVIHLA, H. R. BOWMAN, and R. RITENOUR, Science *114*, 298 (1951).

Über zwei neue Akarizide aus der Gruppe der Di-(*p*-chlorphenyl)-karbinole

Wie die bisherigen Versuche und Erfahrungen im Pflanzenschutz gezeigt haben, weist Dichlordiphenyltrichloräthan keine akariziden Eigenschaften auf; im