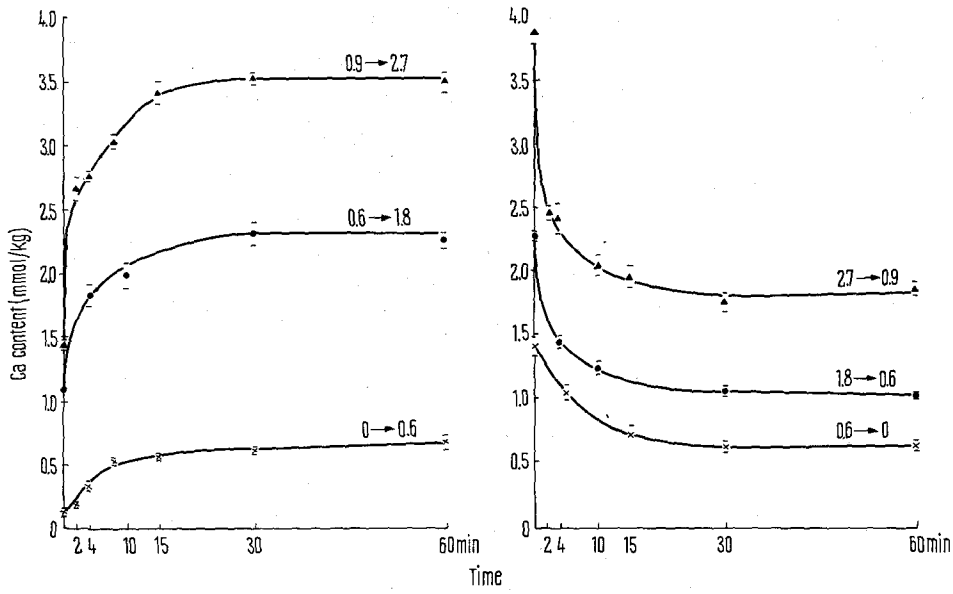

Time course of the adaptation of tissue Ca to an altered [Ca^{++}] of the incubation medium. The alteration of the $[Ca]_{Tyr.}$ is indicated in m*M* at each curve. Abscissa: time in minutes after the alteration. Ordinate: tissue Ca content in mmol/kg wet wt. The points represent means ± S.E.M. of at least 10 muscle strips.

Dependence of the tissue Ca content and the ratio Ca_{cell} : Ca_{Tyr} on the [Ca^{++}] of Tyrode solution, experiments using isolated longitudinal muscle strips of guinea-pig ileum

$[Ca]_{Tyr.}$ (m*M*)	Tissue Ca mmol/kg wet wt.	Ratio $Ca_{cell.}$: $Ca_{Tyr.}$
0	0.14	—
0.6	1.1	2.5
0.9	1.4	2.1
1.8	2.7	1.8
2.7	3.9	1.6

the incubation medium. The new equilibrium value is reached in about 20 min which is significantly longer than the time necessary for diffusion of Ca^{++} into or out of the extracellular space. A half life time of about 5 min rather resembles the time course of the exchanges process of Ca in smooth muscles measured by means of ^{45}Ca[6]. Reports on tissue Ca content of smooth muscles can only be compared if the results are obtained under identical conditions, especially regarding the [Ca^{++}] of the incubation medium.

Zusammenfassung. Der Ca-Gehalt von isolierter Längsmuskulatur des Meerschweinchens hängt stark von der Ca-Konzentration der Tyrode-Lösung ab (untersuchter Bereich 0–2,7 m*M*). Nach schrittweiser Änderung der extracellulären Ca-Konzentration erreicht der zelluläre Ca-Gehalt nach etwa 20 Minuten seinen neuen Gleichgewichtswert.

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Giberellic Acid and β-Sitosterol as Sterilants of the Cotton Leaf worm *Spodoptera littoralis* Boisduval

The use of growth hormones or chemicals capable of inducing a similar action as insecticides or chemosterilants was suggested as a new approach to the biological control of insects[1]. Investigations were also made on the possible sterilizing effect of mitotic poisons and antimetabolites against a few insect species[2–7]. The present contribution includes the evaluation of the effect of the phyto-hormone giberellic acid and the phytosterol β-sitosterol on the development of the cotton leaf worm *Spodoptera littoralis* Boisduval.

The substance to be tested was incorporated at 0.1 concentration into the standard semiartificial diet developed for the cotton leaf worm[8], composed mainly of dry kidney beans, agar, ascorbic acid, Brewer's yeast and a vitamin complex. The same method for rearing was adopted. 200 newly hatched larvae of *S. littoralis* were fed on the treated diet till pupation. Untreated diet was used as the check in all cases. The experiments were run at 30 °C. The

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Data on the effect of two substances on the development of *Spodoptera littoralis* Boisduval

		Substance tested (0.1% conc.)		Control
		Giberellic acid	β-Sitosterol	
Larval duration (days) ± S.E.		14.7 ± 0.12	15.7 ± 0.12	11.9 ± 0.03
Pupal duration (days) ± S.E.		7.0 ± 0.57	8.8 ± 0.09	6.8 ± 0.09
Pupal weight (mg) ± S.E.	Male	227.9 ± 12.1	196.6 ± 9.11	241.0 ± 13.3
	Female	265.5 ± 66.7	209.8 ± 8.27	267.1 ± 13.2
Emergence (%)		100	80	92
Longevity (days) ± S.E.	Male	8.7 ± 0.34	9.1 ± 0.44	9.1 ± 0.37
	Female	8.0 ± 0.45	8.1 ± 0.53	9.1 ± 0.31
Mean egg No. per female[a]		104.8 ± 35.9 (15–380)	433.5 ± 68.8 (75–750)	472.4 ± 19.1 (150–894)
Hatching (%)		1.4	8.5	99.4

[a] 30 pairs were used in each test (all females laid eggs in all tests).

effect of the tested compounds on the larval and pupal development was determined. 30 pairs of moths reared from the treated as well as the untreated diets were placed individually in one litre glass jars provided with leaves of *Nerium oleander* as oviposition sites and fed on 10% honey solution. The egg production per female as well as the fertility were determined. The pupae were weighed and the percentage of emergence was estimated.

Results. The data are given in the Table. Both substances significantly prolonged the larval duration as compared with the check. Giberellic acid had no effect on the pupal duration, while β-sitosterol significantly prolonged it as compared with the untreated individuals. The pupal weight was significantly reduced as a result of larval treatment with sitosterol, while giberellic acid had no effect. Male and female moths ensuing from treated larvae copulate normally, since immobile sperms were detected in the spermatheca of all females confined with treated males. Both substances affected the fecundity and fertility of the resulting moths where they induced sterility. All females laid eggs but there was a significant reduction in the egg production after larval treatment with giberellic acid, 104.8 ± 35.9 (15–380) eggs as compared to 472 ± 19.1 (150–894) eggs in the control check. The percentage of egg hatching was greatly reduced being 1.4 and 8.5% as a result of larval treatment with giberellic acid and sitosterol, respectively, compared to 99.4% in the control moths. There was no marked difference in the percentage of emergence of moths between treated and untreated individuals. Giberellic acid and sitosterol exerted some effect on the larval and pupal development of *Heliothes* species[9]. The fecundity and fertility of these species were partially affected by sitosterol, while giberellic acid only affected the fecundity.

The foregoing results suggest that these plant substances could act as chemosterilants and may be recommended for mass production of sterile insects in the laboratory for large scale research programm in the field.

Zusammenfassung. Wird Gibberellinsäure und Sitosterol der Larven-Diät von *Spodoptera littoralis* zugegeben, so kommt es zu deutlicher Sterilität bei den ausgebrüteten Motten und zu einer Beeinflussung der Dauer ihrer Entwicklungsphase.

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Influence of Continuous and Intermittent (R-Wave Triggered) Electrical Stimulation of the Carotid Sinus Nerve on the Static Characteristic of the Circulatory Regulator

Electrical stimulation of the carotid sinus nerve (CSN) and depressor nerve as a treatment of hypertension has become known as 'baropacing' (GRIFFITH and SCHWARTZ[1]; BILGUTAY et al.[2]). There are several methods to optimize the parameters of stimulation. Besides determining the effect of reduction in arterial pressure and the blood pressure level in case of longer stimulating influence (adaptation), it is also possible to describe the effect of electrical stimulation by recording characteristics of the blood pressure control system (BRATTSTRÖM and WARZEL[3]). Thus, it is possible to follow the effect of baropacing over the entire control range. In addition, the position of the blood pressure lowered by electrical stimulation of the CSN within the control range may be localized.

The experiments were performed on 14 mongrel dogs (12–18 kg) anesthetized with morphin and urethane. The right carotis sinus nerve for electrical stimulation and a 'Karotissinuspräparat' on the contralateral side were prepared.

The object of baropacing is to reduce the blood pressure increased in case of hypertension. When the CSN is stimulated the blood pressure decreases, wandering from point A to point B (Figure 1), provided that the characteristic is non-effected by the artifical stimulation. Thus, for an additional reduction in blood pressure, e.g. by hemorrhage, no regulatory effects would be possible. How-

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