ing results: C 63.3%; H 7.8%; N 3.2%; O 24.8%. UV-spectrum shows absorption maxima in ethanolic solution at 401, 378, 359, 340 nm, a characteristic pattern for heptaenic structures[4]. Thin layer chromatography on silica gel shows a single spot in many solvent systems[5]; in butanol-ethanol-acetone-25% ammonium hydroxide (2:5:1:3), the compound has a Rf value (about 0.8) different from that of the starting material (0.5). IR-spectrum (nujol mull) shows the ester carbonyl absorption at 1715 cm^{-1} and the NMR-spectrum (dimethyl-d_6 sulfoxide solution) presents the signal due to the methyl ester protons at 3.25 ppm.

Partricin methyl ester is inactive against bacteria, but active against several saprophytic and pathogenous fungi (in particular yeasts) and against some protozoa. The MIC on *C. albicans* (Fluid Sabouraud medium, Difco) are about 0.05 µg/ml and the MIC on *T. vaginalis* (CPLM medium) are about 2 µg/ml. On the whole, the inhibitory activity of partricin methyl ester is higher against the yeasts and lower against *T. vaginalis*, compared to the starting substance.

The LD_{50} of partricin methyl ester in mice is over 2 g/kg by oral route and about 200 mg/kg by i.p. administration (carboxymethylcellulose suspension). The hemolytic activity is low. The compound administered by oral route for 6 months to dogs and rats (200 mg/kg die) has not modified body weight growth, WBC, RBC, blood urea nitrogen, serum creatinine, SGOT, SGPT, alkaline phosphatase, etc. Local applications on the normal and scarified skin of rabbits and on the conjunctival mucosa and corneal epithelium are well tolerated. In clinical trials the compound proved effective on *Candida* and *Trichomonas* vaginal infections and on fungal skin and mucosa infections following local application.

The esterification seems to have increased the activity against yeasts and to have reduced the toxicity and the hemolytic activity of partricin. The above data represent a new approach to the synthesis of semisynthetic derivatives of natural polyenes with biological properties improved over those of the parent compounds. Preliminary results show that esterification can decrease the toxicity while preserving the antifungal activity of other polyene antibiotics.

Zusammenfassung. Es wurde der Methylester von Partricin, eines polyenischen Antibiotikums, hergestellt. Das Produkt zeigte eine gesteigerte Aktivität gegen Hefen und eine verminderte Toxizität.

T. BRUZZESE, I. BINDA, A. DI NARDO, G. GHIELMETTI and M. RIVA

Research Laboratories, SPA – Società Prodotti Antibiotici, Via Biella 8, I–20143 – Milano (Italy), 19 June 1972.

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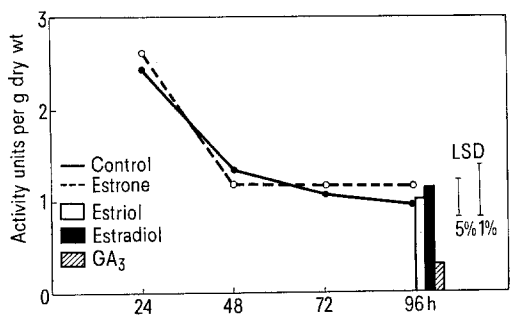
Effect of Estrogens and Gibberellic Acid on Cytokinin and Abscisic Acid-Like Compound Contents in Pea

Steroidal hormones are found in small amounts in plant tissues[1] and they may have influence on the growth[2,3], flowering[4–6] and sex-expression[7–9] in plants. It was also found that an increased biosynthesis of estrogens occurs at the time of flower bud formation and reaches a maximum at the time of flower development[10,11]. The mechanism of action of the steroid substances in plants is unknown. In previous papers the positive influence of the exogenously applied estrogens on the content of endogenous gibberellins and auxins, and lack of effect of GA_3 and IAA on the endogenous estrogens content in plants was stated[12–15]. At the same time kinetin increased and abscisic acid (AbA) decreased the amounts of estrogens[15]. The present paper deals with the effect of estrogens and gibberellic acid on endogenous cytokinin and inhibitor level.

Material and methods. Pea seeds (*Pisum sativum* var. Cud Kelwedonu) were germinated and cultivated in sterile sawdust under red light (λ_{max} 610 nm, E 0.915 µW/mm²/s) at 20–22 °C. After 6 days the seedlings were selected and treated with estrone, estriol, estradiol-17β on one hand or gibberellic acid on the other, in 0.1 and 0.001 µg doses of hormone per plant, respectively. Growth regulators determination were carried out on the



Influence of estrogens and gibberellic acid (GA_3) on the abscisic acid like compound contents in pea. LSD, significant differences at $P=1$ and $P=5$.

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Effect of estrogens and gibberellic acid (GA_3) on the growth of seedlings and cytokinin activity in extracts from 100 g of pea tissues

	Value in	Control	Estrone	Estradiol	Estriol	GA_3
Height[a] of pea seedlings	(mm)	70.8	99.6	100.4	98.1	98.7
	(%)	100.00	140.67	141.80	138.55	139.40
Yield of fresh tobacco tissue	(g/flask)	0.26	0.55	0.46	0.35	0.28
	(%)	100.00	211.53	176.92	134.61	107.69
Kinetin controls (μg/l) 0–0.12[b]						
1–0.35						
5–0.76						
25–3.16						

[a] 96 h after application. [b] Yield of fresh tobacco tissue – (g/flask).

pea seedlings deprived of cotyledons 24, 48, 72 (AbA) and 96 h (cytokinins, AbA) after application.

AbA-like substances were extracted and fractionated according to the method described by RUDNICKI[16]. TLC with benzene-acetone-acetic acid (70:30:1) as solvent was used. The abscisic acid zone (Rf 0.35–0.45) was then rechromatographed on Whatman No. 3 paper in redistilled water. The content of inhibitor was estimated by the wheat section straight growth test[17]. Growth inhibition was expressed in activity units. As activity unit 10% growth inhibition of the test plants in relation to control was taken. Cytokinins were determined according to HEIDE and SKOOG method[18]. A cation exchange column (250 ml, Dowex 50W-X4 H^+ 50–100 mesh) was used for separation. Cytokinin activity was measured by the tobacco callus bio-assay[19].

Results and discussion. The increase of 40% in the growth of the seedlings treated with estrogens and GA_3 was observed 96 h after application (Table). Thus the two kinds of different hormones had an identical physiological effect. Our results (Table, Figure) show the positive effect of estrogens on the endogenous cytokinins content and the lack of the influence on the level of AbA-like substance. On the other hand, however, gibberellic acid, while showing the same final physiological effect, lowered the AbA amounts and did not change the cytokinins content. So it seems possible that estrogens and gibberellins effect the plant metabolism in various ways. The results obtained confirm also a relationship between estrogens and other plant hormones in regulating the growth and development processes in plants. The previous[12,13] and the present papers show that estrogenic hormones influence the content of auxins, gibberellins and cytokinins in plant tissues. This may be the cause of many important metabolic reactions. The investigations of the interrelations between steroidal hormones and other groups of active substance were carried out in order to detect the strict control of growth and development processes which may exist in plants through the combined action of several regulatory substances.

Zusammenfassung. Die mit Oestrogenen (0.1 μg pro Pflanze) und Gibberellinsäure (GA_3, 0,001 μg pro Pflanze) behandelten Erbsenkeimlinge zeigten nach 96 h ein um 40% stärkeres Längenwachstum als die Kontrollpflanzen. Die Oestrogene erhöhten in den Keimlingen den Gehalt an Cytokininen, übten jedoch keinen Einfluss auf den Abscisinsäure-Gehalt aus. Die Gibberellinsäure andererseits setzte den Gehalt an Abscisinsäure herab, ohne die Konzentration der Cytokinine zu verändern.

J. KOPCEWICZ and J. H. ROGOZINSKA

Department of Plant Physiology, Institute of Biology, Copernicus University, Sienkiewicza 30/32, Torun (Poland); and
Laboratory of Plant Physiology, College of Agriculture, Bydgoszcz (Poland), 4 April 1972.

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STUDIORUM PROGRESSUS

A Generalized Homology Correlation for Various Hormones and Proteins

An important archetypal connection between glucagon and secretin has been demonstrated and, in view of the disparities in both function and formation site for these two hormones, it was suggested that a search be instigated for other, less obvious genetic and biological relationships[1]. Along these lines, a computer alignment was then made between the above pair and pituitary and placental lactogen hormones[2]. The results were interesting, but inconclusive, since the complete sequences of the latter proteins were not known at the time. Recently, a different approach, based on glandular origin, was used to rank various enterosecretory proteins[3]. Here the original glucagon-secretin correlation was extended to include portions of two growth hormones. The relationships seemed probable, yet suffered from the use of erroneous primary sequences and the restriction of homology to short, selected regions. In view of continual interest in this area, a new treatment differing in various details, positioning points, and area of coverage is now presented in the Table.

Some comments are necessary on the specific primary structures selected for the various compounds. In rough