

Contents

Contents of Number 1/2

Original Communications

- Comparison of the Deuterium and Carbon-13 Contents of Ethanol Obtained by Fermentation and Chemical Synthesis (In German)
P. RAUSCHENBACH, H. SIMON, W. STICHLER, and H. MOSER 1
- Investigations on *Hoya species*, II. Latex Lipids and Leaf Phenolics of *Hoya bella* Hook
W. J. BAAS and G. J. NIEMANN 5
- Bombykal, a Sex Pheromone of the Sphinx Moth *Manduca sexta*
A. N. STARRATT, K. H. DAHM, N. ALLEN, J. G. HILDEBRAND, T. L. PAYNE, and H. RÖLLER 9
- Stained Native Collagen: Interpretation of the Small Angle X-Ray Scattering and Electron Microscopic Pictures in Terms of the Primary Structure
H. MEYER and H.-G. KILIAN 13
- Phenylalanyl-tRNA Synthetase from Baker's Yeast: Structural Organization of the Enzyme and Its Complex with tRNA^{Phe} as Determined by X-Ray Small-Angle Scattering
I. PILZ, K. GORAL, and F. V. D. HAAR 20
- The Acetylcholinesterase of *Bungarus multicinctus* Venom. Purification and Properties (In German)
H. GROSSMANN, M. WEINERT, and M. LIEFLÄNDER 27
- Assimilatory Nitrate Reductase of *Rhodospseudomonas capsulata* AD2: A Molybdo-Hemeprotein
K. ALEF and J.-H. KLEMME 33
- Purification, Subunit Structure, and Kinetics of the Chloroform-Released F₁ATPase Complex from *Rhodospirillum rubrum* and Its Comparison with F₁ATPase Forms Isolated by Other Methods
H. W. MÜLLER, U. SCHWULÉRA, M. SALZER, and K. DOSE 38
- Evidence for the Existence of *meta* and *para* Directing O-Methyltransferases in Tobacco Cell Cultures
Y.-F. TSANG and R. K. IBRAHIM 46
- Attempts to Enrich and to Solubilize the Muscarinic Acetylcholinreceptor from Bovine Caudate nucleus (In German)
K.-P. RUESS, M. LIEFLÄNDER, and K. H. HERZOG 51
- Search for Millimeter Microwave Effects on Enzyme or Protein Functions
P. TUENGLER, F. KEILMANN, and L. GENZEL 60
- The Role of Acidic Proteins from Cytoplasmic Fractions of Krebs II Ascites Cells for Efficient Translation
B. SETYONO, H.-P. SCHMID, and K. KÖHLER 64
- Characterization of an Endogenous Transcription Inhibitor from *Physarum polycephalum*
A. HILDEBRANDT, R. MENGEL, and H. W. SAUER 76
- The Incorporation of [1,2-¹³C₂]Acetate into Pisatin to Establish the Biosynthesis of Its Polyketide Moiety
A. STOESSL and J. B. STOTHERS 87
- In vitro* Action of Gastric Mucosal Lysosomal Enzymes on Intracellular Gastric Glycoproteins
F. M. FOUAD and D. WALDRON-EDWARD 90
- Cultured Lung Cells: Effects of Isotopic Dilution and Some Undefined Stimulation on the Incorporation of Radiolabeled Palmitate and Choline into Phosphatidyl Choline (Lecithin)
G. COLACICCO, M. K. BASU, A. K. RAY, M. WITTNER, and R. M. ROSENBAUM 96
- Cultured Lung Cells: Interplay Effects of Beta-Mimetics, Prostaglandins and Corticosteroids in the Biosynthesis of Dipalmitoyl Lecithin
G. COLACICCO, A. K. RAY, M. K. BASU, M. WITTNER, and R. M. ROSENBAUM 101
- Changes of the Amounts of Pigments and Prenylquinones in Chloroplasts of *Hordeum vulgare* — Seedlings Treated with the Growth Regulating Herbicide MCPA (4-Chloro-2-methylphenoxyacetic Acid) (In German)
H. K. KLEUDGEN 106



Effect of Simazine on Formation of Chloroplasts Prenylipids in Seedlings of <i>Hordeum vulgare</i> L. (In German)		Methylmercury-Induced Sedimentation Heterogeneity of T7 Bacteriophage DNA	
H. K. KLEUDGEN	110	D. W. GRUENWEDEL and S. E. BROWN	162
Contents of Number 3/4			
Original Communications			
The <i>in vitro</i> and <i>in vivo</i> Stability of the Entrapment of Methotrexate in Negatively Charged Liposomes after Sterile Filtration (In German)		Empirical Border Lines of the Apatite Stability Field in the System $\text{CaO-P}_2\text{O}_5\text{-H}_2\text{O-Na}_2\text{O-CO}_2\text{-MX}$ at Room Temperature	
J. FREISE, P. MAGERSTEDT, and W. F. SCHMIDT	114	F. C. M. DRIESSENS, J. W. E. VAN DIJK, and J. M. P. M. BORGGREVEN	165
The Variation of the Electrochromic Difference Spectrum at Various Stages of the Chloroplast Development		Structural Investigations on Lipopolysaccharides of Mutants S SF 1111 and R 595 SF 1167 of <i>Salmonella minnesota</i> (In German)	
G. RENGGER, D. DIFIORE, B. LUURING, and P. GRÄBER	120	H. WAWRA, H. BUSCHMANN, H. FORMANEK, and S. FORMANEK	171
Enhanced Melanization of Harding-Passey Mouse Melanoma Cells Following Treatment with Exogenous Melanosomes in Monolayer Culture		Carotenoids of Rhizobia. III. 2',3'- <i>trans</i> -Dihydroxy-2-nor- β,β -carotene-3,4-dione, a Novel Carotenoid from a Mutant of <i>Rhizobium lupini</i>	
H. B. LEISING and D. O. SCHACHTSCHABEL	124	P. BEYER, H. KLEINIG, W. MEISTER, and G. ENGLERT	179
Osmotic Sensitivity and Tolerance and Proteinase Production in a Strain of <i>Saccharomyces</i>		New C_{30} -Carotenoic Acid Glucosyl Esters from <i>Pseudomonas rhodos</i>	
J. F. T. SPENCER and D. M. SPENCER	131	H. KLEINIG, R. SCHMITT, W. MEISTER, G. ENGLERT, and H. THOMMEN	181
Accessibility of Extracellular Space in the Rhabdome of the Living Isolated Retina of the Crayfish		Nor-Carotenoids as the Major Volatile Excretion Products of <i>Cyanidium</i>	
W. SCHRÖDER, H. STIEVE, and I. CLASSEN-LINKE	136	F. JÜTTNER	186
Isolation of Anatomical Brain Mutants of <i>Drosophila</i> by Histological Means		Thioether Formation of Phycocyanobilin: A Model Reaction of Phycocyanin Biosynthesis	
M. HEISENBERG and K. BÖHL	143	G. KLEIN and W. RÜDIGER	192
Phototactic Reactions of <i>Asplanchna priodonta</i> to Monochromatic Light (In German)		Protein Subunits of Bacteriochlorophylls B 802 and B 855 of the Light-Harvesting Complex II of <i>Rhodospseudomonas capsulata</i>	
H. HERTEL	148	R. FEICK and G. DREWS	196
Pesticides and Honey Bees: The Danger of Microencapsulated Formulations		Isolation and Characterization of Flavonol Converting Enzymes from <i>Mentha piperita</i> Plants and from <i>Mentha arvensis</i> Cell Suspension Cultures	
ROY J. BARKER, Y. LEHNER, and M. R. KUNZMANN	153	G. FREY-SCHRÖDER and W. BARZ	200
Notes			
The Wax of <i>Calathea lutea</i> (Marantaceae)		Photoactive ATP Dependent Glutamine Synthetase from Chloroplasts of <i>Setaria italica</i> Beauv.	
K. E. MALTERUD, E. WOLLENWEBER, and L. D. GÓMEZ P.	157	S. VENKATARAMANA and V. S. R. DAS	210
A Revised Structure for the Phytoalexin Cajanol			
J. L. INGHAM	159		

NADPH-Dependent Thioredoxin Reductase and a New Thioredoxin from Wheat G. SUSKE, W. WAGNER, and H. FOLLMANN	214	Notes	
A PAPS-Dependent Sulfotransferase in <i>Cyanophora paradoxa</i> Inhibited by 5'-AMP, 5'-ADP, and APS A. SCHMIDT and U. CHRISTEN	222	Isolation of Batatasin I from <i>Dioscorea dumetorum</i> Rhizomes M. M. EL-OLEMY and J. REISCH	288
On the Oligomycin-Sensitivity and Subunit Composition of the ATPase Complex from <i>Rhodospirillum rubrum</i> H. W. MÜLLER and M. BALTSCHIEFFSKY	229	Isoflavonoid Phytoalexins of <i>Parochetus communis</i> and <i>Factorovskya aschersoniana</i> J. L. INGHAM	290
Effect of Divalent Cations on Cation Fluxes Across the Chloroplast Envelope and on Photosynthesis of Intact Chloroplasts B. DEMMIG and H. GIMMLER	233	Phytoalexin Production by Species of the Genus <i>Caragana</i> J. L. INGHAM	293
A Radioactive 1,4-Benzoquinone as Inhibitor of the DBMIB-Type in Photosynthetic Electron Transport W. OETTMEIER	242	Phytoalexin Production by Flowers of Garden Pea (<i>Pisum sativum</i>) J. L. INGHAM	296
On the Dynamic Model of tRNA: Recent Experimental Findings O. GÜREL	248	Electron Microscopy of Synaptonemal Complexes in Semithin Sections O. D. COLMAN and J. C. STOCKERT	299
The Molecular Weight of rRNA Precursor Molecules and Their Processing in Higher Plant Cells U. SEITZ and U. SEITZ	253	Absence of Microsomal Lipid Peroxidation in Acatalasemic Mice CH. STEFFEN	301
Circular Dichroism and Ultraviolet Absorbance of Calf Thymus DNA in Presence of CH ₃ HgOH M. S. CLEGG and D. W. GRUENWEDEL	259	A New Mutant Affecting Aldehyde Oxidase in <i>Drosophila melanogaster</i> M. M. BENTLEY and J. H. WILLIAMSON	304
Sequences Homologous to BAV Component of HL23V in Baboon Tissues L. MISHRA and M. A. BALUDA	266	The Inbred Mouse Strain STU. Development and Properties (In German) W. SCHÄFER	306
Density-Dependent Growth Inhibiting Interactions between 3T3 and SV40-3T3 Cells in Mixed Cultures J. VAN DER BOSCH and H. MAIER	272		
Density-Dependent Growth Adaptation Kinetics in 3T3 Cell Populations Following Sudden [Ca ²⁺] and Temperature Changes. A Comparison with SV40-3T3 Cells J. VAN DER BOSCH, I. SOMMER, H. MAIER, and W. RAHMIG	279	Contents of Number 5/6	
Structural Differences in the Tracheal Tapetum of Diurnal Butterflies W. A. RIBI	284	Original Communications	
		Hastatoside, a New Iridoid from <i>Verbena hastata</i> L. and <i>Verbena officinalis</i> L. (In German) H. RIMPLER and B. SCHÄFER	311
		Iridoids in <i>Verbena</i> and Some Other Verbenoideae (In German) S. MILZ and H. RIMPLER	318
		Amanitin Content and Toxicity of <i>Amanita verna</i> Bull. R. SEEGER and T. STIJVE	330
		Cardenolide Biogenesis and Translocation in <i>Convallaria majalis</i> L. (In German) B. KOPP, W. LÖFFELHARDT and W. KUBELKA	334

Absorption, Body Distribution, Metabolism, and Excretion of Dieldrin in Non-Human Primates and Other Laboratory Animals (In German) W. MÜLLER, G. NOHYNEK, F. KORTE and F. COULSTON	340	Spectroscopic and Thermodynamic Studies of Chlorophyll Containing Monolayers and Vesicles. Part II: Chlorophyll a and Pheophytin a Aggregation on DMPC Vesicles J. LUISETTI, H. MÖHWALD, and H. J. GALLA	406
Improved Synthesis and Rapid Isolation of Millimole Quantities of Adenylylsulfate B. P. COOPER and H. G. TRÜPER	346	Evidence for a Rapid Oxygen-Uptake in Tobacco Chloroplasts G. H. SCHMID and P. THIBAUT	414
Immobilization of Adenosine-Acetals with Variable Alkylidene Residues. — The Function of the Spacer during Enzymatic Deamination (In German) F. SEELA, J. OTT and H. ROSEMEYER	350	Comparison of the Inhibition of Photosynthetic Reactions in Chloroplasts by Dibromothymoquinone, Bromonitrothymol and Ioxynil S. REIMER, K. LINK, and A. TREBST	419
A ^1H NMR Study of the <i>Syn-Anti</i> Dynamic Equilibrium in Adenine Nucleosides and Nucleotides with the Aid of Some Synthetic Model Analogues with Fixed Conformations L. DUDYCZ, R. STOLARSKI, R. PLESS, and D. SHUGAR	359	The Effect of Antibodies to Violaxanthin on Photosynthetic Electron Transport U. LEHMANN-KIRK, G. H. SCHMID, and A. RADUNZ	427
Cyanide Insensitive Iron Superoxide Dismutase in <i>Euglena gracilis</i> . Comparison of the Reliabilities of Different Test Systems for Superoxide Dismutases E. LENGFELDER and E. F. ELSTNER	374	Transcription and Release of RNA in Isolated Nuclei from Parsley Cells K. GROSSMANN, U. SEITZ, and H. U. SEITZ	431
Comparative Studies on the Dodecameric and Hexameric Forms of Yeast Aminopeptidase I H.-G. LÖFFLER and K.-H. RÖHM	381	Sequence Complexity of Transcribed Unique DNA Sequences in Genome of Mouse P815 Mastocytoma Cells (In German) T. L. J. BOEHM and D. DRAHOVSKY	436
Separation of the S-Adenosylmethionine: 5- and 8-Hydroxyfuranocoumarin O-Methyltransferases of <i>Ruta graveolens</i> L. by General Ligand Affinity Chromatography S. K. SHARMA, J. M. GARRETT, and S. A. BROWN	387	Physico-Chemical Studies of Isolated Chromatin Compared with <i>in situ</i> Chromatin after Partial Hepatectomy in the Rat P. MILLER, W. A. LINDEN, and C. NICOLINI	442
Drug-Protein Interaction: 8-Methoxy Psoralen as Photosensitizer of Enzymes and Amino Acids F. M. VERONESE, O. SCHIAVON, R. BEVILACQUA, and G. RODIGHIERO	392	Incorporation of 5-Bromo-2-deoxyuridine into the Chloroplast DNA of <i>Anemia phyllitidis</i> J. ŠONKA and H. SCHRAUDOLF	449
Action of Citrinin on Liposomes M. G. GANESAN, M. LAKSHMANAN, K. V. RAVINDRAN and C. DAMODARAN	397	The Influence of Spermine, Spermidine and Various Sera on T-Lymphocyte and Granulocyte Colony Growth <i>in vitro</i> H. R. MAURER and R. MASCHLER	452
Effect of Mechanical Traumatization on Rate and Constancy of Oxygen Uptake of Isolated Diaphragms H. J. SCHMIDT, M. SOMMER, and J. PICHOTKA	400	Fusion of Plant Protoplasts Induced by a Positively Charged Synthetic Phospholipid T. NAGATA, H. EIBL, and G. MELCHERS	460
		The Physiological Optics of a Nocturnal Semi-Aquatic Spider, <i>Dolomedes aquaticus</i> (Pisauridae) D. S. WILLIAMS	463
		Free-Running Human Circadian Rhythms in Svalbard A. JOHNSSON, W. ENGELMANN, W. KLEMKE, and A. T. EKSE	470

Temperature-Dependence of Biological Process (In German)	A Viscosity Model of Polyacrylamide Gel Electrophoresis
K. TRINCHER	H.-J. BODE
474	512
On the Construction of a Phylogenetic Tree	Inhibition of the Nitrate Reductase Complex by Dibromothymoquinone
J. TOHÁ, M. A. SOTO, and M. PIEBER	N. JAWALI, J. RAMAKRISHNA, J. K. SAINIS, and P. V. SANE
478	529
<i>Notes</i>	Purification and Characterization of a 3,17 β -Hydroxysteroid Dehydrogenase from <i>Streptomyces hydrogenans</i>
A Fluorometric Test for Microsomal Monooxygenase Activity in the Rat Liver with Scoparone as Substrate (In German)	H. DUCHMANN and L. TRÄGER
D. MÜLLER-ENOCH, H. THOMAS, and H. OCKENFELS	533
481	5-Methyltryptophan Resistant Cells of <i>Catharanthus roseus</i>
Presence and Biosynthetic Implications of β,β -Carotene-2-one in the Moth <i>Cerura vinula</i>	J. SCHALLENBERG and J. BERLIN
H. KAYSER	541
483	On the Possible Involvement of Ascorbic Acid and Copper Proteins in Leukemia. III. ESR Investigations on the Interaction between Ascorbic Acid and Some Transition Metal Ions
Antimicrobial Activity of Quaternary Ammonium Salts of Some Saturated Heterocycloalkyl Amines	W. LOHMANN and R. LANGE
I. LACKO, F. DEVINSKY, L. KRASNEC, and D. MLYNARČIK	546
485	On the Possible Involvement of Ascorbic Acid and Copper Proteins in Leukemia. IV. ESR Investigations on the Interaction between Ascorbic Acid and Some Copper Proteins
Some Characteristics of Sulphate Uptake into Synaptosomes	W. LOHMANN, J. SCHREIBER, and W. GREULICH
C. J. BRANFORD WHITE	550
487	Complex Influence of Cytochalasin B on Actin Polymerization
Inhibitors of Photosynthetic Electron Transport. The Properties of Diazidodialkylbenzoquinones	P. DANCKER and I. LÖW
H. BAYLEY	555
490	Distribution and Enzymic Hypermethylation of Inverted DNA Repeats in Different Murine and Human Cells (In German)
	TH. L. J. BOEHM and D. DRAHOVSKY
	558
<i>Contents of Number 7/8</i>	γ -Irradiated Ribosomes from <i>Micrococcus radiodurans</i> in a Cell-Free Protein Synthesizing System (In German)
<i>Original Communications</i>	R. SÜSSMUTH and A. WIDMANN
Studies on the Chemistry of Lichens, XIX. New Amino Compounds from <i>Anaptychia fusca</i> and Several <i>Stereocaulon</i> Species	565
Y. SOLBERG	493
The Chemical Composition of Cuticular Lipids from Dragonflies (Odonata)	Characterization of a Light-Induced Oxygen-Uptake in Tobacco Protoplasts
J. JACOB and H.-P. HANSSEN	G. H. SCHMID and P. THIBAUT
498	570
Spin-Lattice-Relaxationtime T_1 Measurements of Nucleosides (In German)	Evidence for Carbon Monoxide Insensitive Respiration in the Aerobic Nitrogen Fixing Bacteria <i>Azotobacter vinelandii</i> OP and <i>Xanthobacter autotrophicus</i> GZ 29
H. STERK, H. KOPP, and H. ESTERBAUER	H. BERNDT, D. WÖLFLE, H. BAHL, and A. STEINBÜCHL
503	576
Spin-Lattice-Relaxationtime- T_1 Measurements of Hyaluronic Acid (In German)	
H. HOFMANN, O. SCHMUT, H. STERK, and H. KOPP	
508	

Interactions between Photosynthetic Pigments Bound to Lipid and Protein Particles. Spectroscopic Properties F. TECHY, M. DINANT, and J. AGHION	582	A Deterministic Model for Measles J. CUNNINGHAM	647
Differences in Hydrolysis and Binding of Homologous Juvenile Hormones in <i>Locusta migratoria</i> Hemolymph M. G. PETER, S. GUNAWAN, G. GELLISSEN, and H. EMMERICH	588	All-or-Non Behaviour and Bistability in a Simple Cell Model with Autocatalysis of Type $A + 2B = 3B$ (In German) P. DECKER and Ö. SAYGIN	649
Hypermetabolic Response Induced by Juvenile Hormone Analogues in an Insect K. SLÁMA and I. KRYSPIK-SØRENSEN	599	Contents of Number 9/10	
Investigations on the Effects of Injected Ecdysone upon the Green Shore Crab <i>Carcinus maenas</i> L. (In German) F. BUCHHOLZ and D. ADELUNG	608	Original Communications	
Response Characteristics and Identification of Extrinsic Mushroom Body Neurons of the Bee U. HOMBERG and J. ERBER	612	Further Evidence for a S-Syn Correlation in the Purine(β)ribosides: The Solution Conformation of Two Tricyclic Analogs of Adenosine and Guanosine G. KLIMKE, H.-D. LÜDEMANN, and L. B. TOWNSEND	653
Biological Effects of Electromagnetic Fields (In German) J. BERNHARDT	616	A Theoretical Study of H_3PO_4 , nor-N-Mustard, and Cyclophosphamide W. ULMER	658
Notes		Synthesis, Biochemistry and Cytostatic Effects of N-Methyl-N- β -chloroethyl-hydrazones of Metalocene Aldehydes (In German) M. WENZEL, M. SCHNEIDER, and E. LISS	670
Eriodictyol-7-glucoside and Other Phenolics in the Blue Fruits of <i>Lasianthus japonica</i> N. ISHIKURA, K. SUGAHARA, and K. KUROSAWA	628	Potential Anticancer Agents, XI. X-Ray Structure Determination of Acantholide H. LOTTER, H. WAGNER, A. A. SALEH, G. A. CORDELL, and N. R. FARNSWORTH	677
Isoflavonoid Phytoalexins from Leaflets of <i>Dalbergia sericea</i> J. L. INGHAM	630	Isoflavonoid Phytoalexins of Yam Bean (<i>Pachyrhizus erosus</i>) J. L. INGHAM	683
Phenylethylamine as a Biochemical Marker of Tiger R. L. BRAHMACHARY and J. DUTTA	632	Synthesis and Spectra (Electronic, CD) of the Co(I) Form of Several Natural Corrinoids (In German) M. MOSKOPHIDIS	689
Enrichment of <i>Solanum khasianum</i> Callus Generating Rootlets with Steroidal Glycoalkaloids CH. K. KOKATE and S. S. RADWAN	634	Screening of Aromatic Secondary Lichen Substances by High Performance Liquid Chromatography D. STRACK, G. B. FEIGE, and R. KROLL	695
Algal Ferredoxin-NADP ⁺ Reductase with Different Molecular-Weight Forms G. BOOKJANZ and P. BÖGER	637	A Near-Infrared Spectroscopic Investigation of Water in Solutions with Proline, Glycinebetaine, Glycerol and Albumin B. SCHOBERT	699
Suppression of Experimental Allergic Neuritis with P ₂ Protein of PNS Myelin J. R. McDERMOTT and A. B. KEITH	641	A Model Mechanism for the Enzymatic Synthesis of Lupin Alkaloids M. WINK, TH. HARTMANN, and H.-M. SCHIEBEL	704
¹³ C Carbon-Isotope Decrease in Annual-Rings of Twentieth-Century Trees M. P. DE SILVA	644		

Purification and Properties of a Catechol Methyltransferase of the Yeast <i>Candida tropicalis</i> J. VESER, P. GEYWITZ, and H. THOMAS	709	On the DNA Content of the Bacteroids of <i>Rhizobium japonicum</i> J. WILCOCKSON and D. WERNER	793
Sinapine Esterase. I. Characterization of Sinapine Esterase from Cotyledons of <i>Raphanus sativus</i> G. NURMANN and D. STRACK	715	Quantitative Comparison of Ribosome Binding Sites of Twelve Nucleotide Sequences from <i>Escherichia coli</i> (RNA- and DNA Phages) Based on Triplet Patterns (In German) E. KÖHLER	797
Acetylcholinesterase from Bovine Erythrocytes. Purification and Properties of the Enzyme Solubilized in the Presence and the Absence of Triton X-100 H. GROSSMANN and M. LIEFLÄNDER	721	Proliferation and Metabolic Activities of Ehrlich Ascites Tumor Cells in Chemically Defined Albumin Media R. TESCHNER, S. POSTIUS, M. LÖFFLER, and F. SCHNEIDER	805
Purification and Properties of the Soluble 17 β -Hydroxysteroid Dehydrogenase of Rabbit Uterus K. POLLOW, W. ELGER, H. HESSLINGER, and B. POLLOW	726	T ₂ Phage Sensitization by Linear and Angular Furocoumarins F. BACCICHETTI, F. BORDIN, F. CARLASSARE, and A. GUIOTTO	811
UDP-Glucose: Glucosyltransferase Activity Involved in the Biosynthesis of Flavonol Trigluco-sides in <i>Pisum sativum</i> L. Seedlings J. L. SHUTE, P. S. JOURDAN, and R. L. MANSELL	738	A Possible Mechanism for a Light-Driven Regulation of the Fatty Acid Composition in Galactolipids of Chloroplasts A. SAUER and K.-P. HEISE	815
Inhibition of <i>E. coli</i> L-Asparaginase by Reaction with 2,3-Butanedione. Chemical Modification of Arginine and Histidine Residues D. PETZ, H.-G. LÖFFLER, and F. SCHNEIDER	742	External Factors Influencing Light-Induced Hydrogen Evolution by the Blue-Green Alga, <i>Nostoc muscorum</i> A. ERNST, W. KERFIN, H. SPILLER, and P. BÖGER	820
Gallic and Protocatechuic Acid Content during the Development of <i>Phycomyces blakesleeana</i> Bgff. (In German) G. SANDMANN and W. HILGENBERG	747	Cation Effects on System II Reactions in Thylakoids: Measurements on Oxygen Evolution, the Electrochromic Change at 515 Nanometers, the Primary Acceptor and the Primary Donor GOVINDJEE, P. MATHIS, C. VERNOTTE, D. WONG, S. SAPHON, TH. WYDRZYNSKI, and J.-M. BRIANTAIS	826
Influence of Twovalent Foreign Cations on the Uptake of Zinc by <i>Chlorella</i> (In German) G. KLÜNGER and E. BRODA	751	The Effect of Analogues of Dibromothymoquinone and of Bromonitrothymol on Photosynthetic Electron Flow A. TREBST, S. REIMER, W. DRABER, and H. J. KNOPS	831
On the Analysis of Competitive Binding of Various Ligands to Cooperative and Independent Binding Sites of Macromolecules H. R. KALBITZER and D. STEHLIK	757	Sensory Transduction in <i>Halobacterium halobium</i> : Retinal Protein Pigment Controls UV-Induced Behavioral Response N. A. DENCHER and E. HILDEBRAND	841
Effects of α -Aminoxy- β -phenylpropionic Acid on Phenylalanine Metabolism in <i>p</i> -Fluorophenylalanine Sensitive and Resistant Tobacco Cells J. BERLIN and B. VOLLMER	770		
Chemical Modification of Biliprotein Chromophores W. KUFER and H. SCHEER	776		
Size Distribution in the Higher Stages of Polymerization of the A-Protein of Tobacco Mosaic Virus (<i>vulgare</i>) D. VOGEL, G. D. DE MARCILLAC, L. HIRTH, E. GREGORI and R. JAENICKE	782		

- Isolation and Characterization of Vacuoles from
Cell Suspension Cultures of *Daucus carota*
F. SASSE, D. BACHS-HÜSEMANN, and
W. BARZ 848

- Protoplasts from Oat Primary Leaves as Tools for
Experiments on the Compartmentation in Lipid
and Flavonoid Metabolism
R. HAAS, E. HEINZ, G. POPOVICI, and
G. WEISSENBOCK 854

- Fine Structure and Organization of the Sarco-
plasmic Reticulum in the Sino-Auricular Fibres
of Frog Heart
M. DUVERT and A. L. BARETS 865

Notes

- A Novel C-Methylated Dihydrochalcone from
Pityrogramma triangularis var. *viscosa*
E. WOLLENWEBER, V. H. DIETZ, D. M. SMITH,
and D. S. SEIGLER 876

- 3'-O-Methylmyricetin-3-rhamnoglucoside a New
Flavonoid from the Autumnal Leaf of *Ginkgo*
biloba L. (In German)
H. GEIGER 878

- The Primary Structure of the β -Lactoglobulin of
the Waterbuffalo (*Bubalus arnee*)
G. BRAUNITZER, J. LIBERATORI, and
H.-J. KOLDE 880

- The Sequence of a Dimeric Hemoglobin (Erythro-
crucorin), Component IX, from *Chironomus*
thummi thummi (Insecta Diptera) (In German)
W. STEER and G. BRAUNITZER 882

- Radioactive Labelling of Lipids in Rat Neuro-
sarcoma by Intravenous Injection of [1-¹⁴C]-
Octadecenol
N. WEBER, M. VOLM, K. WAYSS, I. RICHTER,
H. K. MANGOLD and K. D. MUKHERJEE 885

- Radiation Induced Loss of Anti-Ig Binding Ability
of Lymphocytes
F. OJEDA, M. FLORES, and H. FOLCH 888

- Color Vision in Salamander Larvae
P. TEMPEL and W. HIMSTEDT 890

Contents of Number 11

Original Communications

Action of Herbicides and Insecticides on the Photo- synthetic Apparatus *

- Preface
P. BÖGER 893

I. Pesticides and the Intact Cell

- Modern Agriculture and Herbicides (In German)
E. KÖHLER 895

- Types of Selective Action by Herbicides which
Inhibit Photosynthesis
J. L. P. VAN OORSCHOT 900

- A Review of the Place of *in vitro* Cell Culture
Systems in Studies of Action, Metabolism and
Resistance of Biocides Affecting Photosynthesis
J. GRESSEL 905

- Metabolism of Chloridazon and Antipyrin in Plant
Cell Suspension Cultures (In German)
E. KELLER, J. EBERSPÄCHER, and
F. LINGENS 914

- The Possible Mode of Herbicidal Action of Atrazine
Basing on the Gas Exchange and the Mode of
Plant Damage after Treatment
H. R. BOLHÄR-NORDENKAMPF 923

- Causes of the Selective Action of the Photo-
synthetic Inhibitors Phenmedipham and Benta-
zon (In German)
H. BÖRNER 926

- Interpretation of Plant Growth Responses to
Chemicals
B. WÜRZER 931

II. Physiology of Herbicidal Action

- Plant Physiological Adaptations Induced by Low
Rates of Photosynthesis
C. FEDTKE 932

* Proceedings of a Workshop at the University of Kon-
stanz in March 1979 (special issue of Z. Naturforsch.).

Effect of Biocides on the Development of the Photosynthetic Apparatus of Radish Seedlings Grown under Strong and Weak Light Conditions H. K. LICHTENTHALER	938	Carotenoid Biosynthesis — a Target for Herbicide Activity G. BRITTON	979
The Effects of Photosystem II Herbicides, Amitrole and SAN 6706 on the Activity of 3-Hydroxy-3-methyl-glutaryl-coenzyme-A-reductase and the Incorporation of [2- ¹⁴ C] Acetate and [2- ³ H]-Mevalonate into Chloroplast Pigments of Radish Seedlings K. H. GRUMBACH and T. J. BACH	941	IV. Herbicides and the Photosynthetic Electron Transport	
Inhibition of Photosynthesis by Bentazon in Intact Plants and Isolated Cells in Relation to the pH G. RETZLAFF, J. L. HILTON, and J. B. ST. JOHN	944	Inhibition of Photosynthetic Electron Flow by Phenol and Diphenylether Herbicides in Control and Trypsin-Treated Chloroplasts A. TREBST	986
Characterization of the Metamitron Deaminating Enzyme Activity from Sugar Beet (<i>Beta vulgaris</i> L.) Leaves C. FEDTKE and R. R. SCHMIDT	948	Some Properties of the DCMU-Binding Site in Chloroplasts W. TISCHER and H. STROTMANN	992
Induction of Reversible Tolerance of Algal Cells to Various Herbicides. I. Inhibition of Photosynthesis by Phenol Herbicides and Dibromothymoquinone, Its Reversal and Development of Insensitivity to Different Herbicides W. URBACH, G. LURZ, H. HARTMEYER, and D. URBACH	951	The Mode of Action of Photosystem II-Specific Inhibitors in Herbicide-Resistant Weed Biotypes K. PFISTER and C. J. ARNTZEN	996
The Algal Excretion Product, Geranylacetone: a Potent Inhibitor of Carotene Biosynthesis in <i>Synechococcus</i> F. JÜTTNER	957	Studies about the Mechanism of Herbicidal Interaction with Photosystem II in Isolated Chloroplasts G. RENGGER	1010
The Effect of 2,3-Substituted Naphtoquinones on Unicellular Algae and Isolated Spinach Chloroplasts (In German) K. BAUER and H. KÖCHER	961	Differential Effects of Herbicides upon Trypsin-Treated Chloroplasts P. BÖGER and K.-J. KUNERT	1015
Biological Determination of Photosynthetic Inhibitors in Soils and Water and Application of Bioassays to Herbicide Investigations W. PESTEMER	964	Mechanism of Action of the Herbicide 4,6-Dinitro- <i>o</i> -cresol in Photosynthesis J. J. S. VAN RENSEN and J. H. HOBÉ	1021
III. Biochemical Considerations		Quantitative Structure Activity Relationship of Diphenylamines as Inhibitors of Photosynthetic Electron Transport and Photophosphorylation W. OETTMEIER	1024
Biochemistry of Herbicides Affecting Photosynthesis K. WRIGHT and J. R. CORBETT	966	Site of Action and Quantitative Structure-Activity Relationship of a Series of Herbicidal <i>n</i> -Aryl-Substituted 3,4-Dimethyl-2-hydroxy-5-oxo-2,5-dihydro-pyrrones G. P. BRUGNONI, P. MOSER, and A. TREBST	1028
Some New Results Concerning Structure-Activity Relationships of Herbicides (In German) W. DRABER	973	Mechanism of Paraquat Action: Inhibition of the Herbicidal Effect by a Copper Chelate with Superoxide Dismutating Activity R. J. YOUNGMAN and A. D. DODGE	1032
		V. Bleaching Herbicides	
		On the Action of Chlorosis-Inducing Herbicides in Leaves J. FEIERABEND, U. SCHULZ, P. KEMMERICH, and T. LOWITZ	1036

Ethane Formation and Chlorophyll Bleaching in DCMU-Treated <i>Euglena gracilis</i> Cells and Isolated Spinach Chloroplast Lamellae E. F. ELSTNER and I. PILS	1040	The Conformation of Bilin Chromophores in Bili-proteins: Ramachandran-Type Calculations H. SCHEER, H. FORMANEK, and W. RÜDIGER	1085
Biological Systems to Assay Herbicidal Bleaching G. SANDMANN, K.-J. KUNERT, and P. BÖGER	1044	Field Desorption Mass Spectrometry of Physiologi-cally Active Steroid- and Dammarane-Saponins T. KOMORI, M. KAWAMURA, K. MIYAHARA, T. KAWASAKI, O. TANAKA, S. YAHARA, and H.-R. SCHULTEN	1094
Influence of Bleaching Herbicides on Chlorophyll and Carotenoids K.-J. KUNERT and P. BÖGER	1047	¹⁵ N-NMR Study on Complexes of Low-Spin Ferri-tetraphenylporphyrin E. v. GOLDAMMER	1106
Pyridazinones, Their Influence on the Biosynthesis of Carotenoids and the Metabolism of Lipids in Plants F. A. EDER	1052	The Cooperativity of the CO ₂ Hb Binding: Measure-ment by ¹³ C-NMR Spectrometry (In German) O. BURKHARD and W. K. R. BARNIKOL	1112
Influence of Aminotriazole on the Biosynthesis of Chlorophyll and Phytol W. RÜDIGER and J. BENZ	1055	Structure of Cerebrosides. II. Small Angle X-Ray Diffraction Study of Cerasine R. HOSEMAN, J. LOBODA-ČAČKOVIĆ, H. ČAČKOVIĆ, S. FERNANDEZ-BERMÚDEZ, and F. J. BALTÁ-CALLEJA	1121
The Role of Light and Oxygen in the Action of the Photosynthetic Inhibitor Herbicide Monuron K. E. PALLETT and A. D. DODGE	1058	Investigations on <i>Hoya</i> Species. III. Leaf Phenolics and Latex Lipids of <i>Hoya lacunosa</i> Bl. G. J. NIEMANN, W. J. BAAS, E. BESSON, and J. CHOPIN	1125
VI. Action of Insecticides on Plants		Herpetriol and Herpetetrol, New Lignoids Isolated from <i>Herpetospermum caudigerum</i> Wall M. KAOUADJI, J. FAVRE-BONVIN, and A.-M. MARIOTTE	1129
Selective Effects of Lindane (γ -1,2,3,4,5,6-Hexachlorocyclohexane) on Photosynthesis, Membrane Transport of Amino Acids and Protein Synthesis in <i>Anacystis nidulans</i> (In German) W. SIMONIS and J. LEE-KADEN	1062	Determination of α -, β -, and γ -Amanitin by High Performance Thin-Layer Chromatography in <i>Amanita phalloides</i> (Vaill. ex Fr.) Secr. from Various Origin T. STIJVE and R. SEEGER	1133
Degradation and Metabolization of Lindane and Other Hexachlorocyclohexane Isomers by Anaerobic and Aerobic Soil Microorganisms K. HAIDER	1066	Radiation Aggregates of Insulin J. KOPOLDOVÁ	1139
Inhibitory Effects of the Insecticides Allethrin, Lindane, and Jacutin-Fogetten Sublimate on Photosynthetic Electron Transport A. WILD	1070	Protamine and Polyarginine Bacteriolysis. Similarities in Its Mechanism with Chromatin DNA Picnosis S. ANTOHI and A. POPESCU	1144
Action of Lindane on the Current-Voltage Relationship in the Plasma Membrane of <i>Elodea</i> under Passive Conditions K. SCHEFCZIK and W. SIMONIS	1072	Molecular Cloning of the Restriction Fragments Derived from Double EcoRI/PstI Digestion of the Calf Satellite I DNA and Their Restriction Analysis J. KLYSIK, K. FURTAK, G. SZYMCZAK, E. BARTNIK, J. SKOWROŃSKI, and H. PANUSZ	1151
Contents of Number 12			
<i>Original Communications</i>			
Ribose Conformations of Adenosine Analogs Modified at the 2', 3' or 5' Positions G. KLIMKE, I. CUNO, H.-D. LÜDEMANN, R. MENGEL, and M. J. ROBINS	1075		

The Influence of Different Solvents on the Interaction between Metal Ions and Tetracycline M. SCHNARR, M. MATTHIES, and W. LOHMANN	1156	Inhibition of Photosynthetic Electron Transport in Tobacco Chloroplasts and Thylakoids of the Blue Green Alga <i>Oscillatoria chalybea</i> by an Antiserum to Synthetic Zeaxanthin U. LEHMANN-KIRK, K. P. BADER, G. H. SCHMID, and A. RADUNZ	1218
Interference of L- α -Aminooxy- β -Phenylpropionic Acid with Phenylalanine Metabolism in Buckwheat H. HOLLÄNDER, H.-H. KILTZ, and N. AMRHEIN	1162	Serine Transport and Membrane Depolarization in the Liverwort <i>Riccia fluitans</i> H. FELLE, H. LÜHRING, and F.-W. BENTRUP	1222
Molybdocene Dichloride as an Antitumor Agent (In German) P. KÖPF-MAIER, M. LEITNER, R. VOIGTLÄNDER, and H. KÖPF	1174	Permeability of Plasma Membrane Vesicles to Ouabain and Mg ²⁺ as a Factor Determining Rate of Binding of Ouabain to Na ⁺ and K ⁺ Dependent ATPase H. WALTER	1224
Expression of Aspartokinase, Dihydrodipicolinic Acid Synthase and Homoserine Dehydrogenase during Growth of Carrot Cell Suspension Cultures on Lysine- and Threonine-Supplemented Media B. F. MATTHEWS and J. M. WIDHOLM	1177	Incomplete Glyoxysomes Appearing at a Late Stage of Maturation of Cucumber Seeds W. KÖLLER, J. FREVERT, and H. KINDL	1232
Catalytic Subunit of Adenosine Cyclic 3',5' Monophosphate-Dependent Protein Kinase from Rat Muscle: Basic Properties and Factors Influencing the Activity W. PYERIN, M. GAGELMANN, D. KÜBLER, and V. KINZEL	1186	Rates of <i>de novo</i> Synthesis of Malate Synthase and Albumins during the Very Early Phase of Germination W. KÖLLER and H. KINDL	1237
Inhibition of Protein Synthesis in Chloroplasts from Plant Cells by Virginiamycin C. COCITO, O. TIBONI, F. VANLINDEN, and O. CIFERRI	1195	An <i>in vitro</i> Culture System for Crayfish Organs K. DAIG and K.-D. SPINDLER	1243
Binding of Antibodies onto the Thylakoid Membrane. V. Distribution of Proteins and Lipids in the Thylakoid Membrane A. RADUNZ	1199	A Sex Attractant for the Green Budworm Moth, <i>Hedya nubiferana</i> B. FREROT, E. PRIESNER, and M. GALLOIS	1248
Evidence for the Existence of Two β -Carotene Pools and Two Biosynthetic β -Carotene Pathways in the Chloroplast K. H. GRUMBACH	1205	On the Role of Light in the Mating Behavior of <i>Drosophila subobscura</i> W. PINSKER and E. DOSCHEK	1253
Accumulation of Photoassimilatory Products by Phycobiliprotein-Containing Algae with Special Reference to <i>Cyanidium caldarium</i> B. P. KREMER and G. B. FEIGE	1209	Precocene II is no Anti-Juvenile Hormone in the Honey Bee, <i>Apis mellifera</i> H. REMBOLD, CHR. CZOPPELT, and G. K. SHARMA	1261
Photosensibilization of Isolated Mesophyll Cells of <i>Calystegia sepium</i> L. (In German) P. RIES and R. BEIDERBECK	1215	The Evolution of Complicated Photoreactions in Viscous Media (In German) H. MAUSER	1264
		II. On the Construction of a Phylogenetic Tree J. TOHÁ, M. A. SOTO, and M. PIEBER	1269
		Notes	
		Distribution of Thioredoxins in Cyanobacteria A. SCHMIDT and U. CHRISTEN	1272

Studies on the Chemistry of Lichens, XX. The Element Concentration of the Lichen Species <i>Alectoria fremontii</i> and Its Associated Bark Substrate of <i>Pinus silvestris</i> Y. SOLBERG	1275	Formation of Platinum Blues by Pyrimidine Nucleotides D. M. L. GOODGAME and I. JEEVES	1287
The Role of 5-Hydroxymarmesin in the Biogenesis of Bergapten F. DALL'ACQUA, G. INNOCENTI, G. CAPORALE, P. RODIGHIERO, and A. GUIOTTO	1278	On the Pigmentation of the Pollen of <i>Nothofagus antarctica</i> (Forst.) Oerst. (Fagaceae) E. WOLLENWEBER and R. WIERMANN	1289
Sex Pheromone of <i>Tortrix viridana</i> : (Z)-11-Tetradecenyl Acetate as the Main Component H. ARN, E. PRIESNER, H. BOGENSCHÜTZ, H. R. BUSER, D. L. STRUBLE, S. RAUSCHER, and S. VOERMAN	1281	On the Action of Diethyldithiocarbamate as Inhibitor of Copper-Zinc Superoxide Dismutase E. LENGFELDER	1292
Observations on the Chromatin Staining by Aluminium-Hematoxylin J. C. STOCKERT	1285	Calculation of Yields for Photochemical Reactions (In German) H. MAUSER	1295
		Subject Index	1297
		Authors Index	1323