"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

ARTSIKHOVSKAYA, N.V.; RUBIN, B.A., prof., otv. red.; ROMANOVSKAYA, Ye.S., red.

[International bibliography of photosynthesis] Fotosintez; ukazatel' otechestvennoi i inostrannoi literatury. Otv. red. B.A.Rubin. Bibliograficheskii red. E.S.Romanovskaia. Moskva, Izd-vo Mosk. univ. Vol.1.1951-1958. Part 1. 1961. 387 p. (MIRA 14:6)

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RUBIN, B.A.; CHERNAVINA, I.A.

Significance of the conditions of iron nutrition for the process of pigment formation. Vest. Mosk. un. Ser. 6: Biol., pochv. 15 no. 5:20-27 S-O '60. (MIRA 13:12)

1. Kafedra fiziologii rasteniy Moskovskogo universiteta.
(Plants, Effect of iron on) (Color of plants)
(Acetic acid)

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IVANOVA, T.M.; RUBIN, B.A.

Oxidase function of peroxidase in the cabbage (Brassica oleracea L.). Biokhimiia 25 no. 3:496-504 My-Je '60. (MIRA 14:4)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R., Moscow.

(PEROXIDASE) (CABBAGE)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

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RUBIN, B.A.; LADYGINA, M.Ye.

Effect of streptomycin on oxidative processes in barley sprouts. Biokhimiia 25 no.4:617-623 Jl-Ag '60. (MIRA 13:11)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R., Moscow.
(STREPTOMYCIN) (PLANTS, EFFECT OF ANTIBIOTICS ON)
(PLANTS—RESPIRATION)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A., doktor biol.nauk

Modern theories on plant respiration. Vest. AN SSSR 30 no.11: 51-60 N '60. (MIRA 13:11)
(Plants--Respiration)

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RUBIN, B.A.

V.I. Palladin's theories and present state of the study of plant respiration. Ukr. biokhim. zhur. 32 no.4:595-613 '60. (MIRA 13:9)

1. Institut biokhimii im. A.N. Bakha AN SSSR, Moskva.
(PALLADIN, VLADIMIR IVANOVICH, 1859-1922)
(PLANTS—RESPIRATION)

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RUBIN, B. A. (Moscow)

"Immunity and Oxidative Systems of Plants

report submitted for the International Conference on Scientific Problems of Plant Protection, Budapest, 19-22 July 1960.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, Boris Anisimovich; KURSANOV, A.L., akademik, otv.red.; SHAROVATOVA, I.B., red.izd-va; DOROKHINA, I.N., tekhn.red.

[Respiration and its role in the immunity of plants; reported at the 12th annual Timiriazev Reading, May 29, 1958] Dykhanie i ego rol' v immunitete rastenii; dolozheno na deviatnadtsatom ezhegodnom Timiriazevskom chtenii 29 maia 1958 g. Moskva, Izd-vo Akad. nauk SSSR, 1960. 65 p. (Timiriazevskie chteniia, no.19). (MIRA 13:7)

(Plants--Respiration) (Plants--Disease and pest resistance)

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RUBIN, Boris Anisimovich; LYUBARSKAYA, Liya Samuilovna; GULIDOVA, Irina Vasil'yevna; SISAKYAN, N.M., prof., otv.red.; KLESHNIN, A.F., red. izd-va; BRUZGUL', V.V., tekhn.red.

[Physiologico-biochemical characteristics of the sugar beet] Fiziologo-biokhimicheskie osobennosti sakharnoi svekly. Moskva, Izd-vo Akad.nauk SSSR, 1960. 110 p. (MIRA 13:3)

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RUBIN, Boris Anisimovich; ARTSIKHOVSKAYA, Yelena Vladimirovna; OPARIN, A.I., akademik, otv.red.; SHAROVATOVA, I.B., red. izd-va; YEGOROVA, N.F., tekhn.red.

[Biochemistry and physiology of immunity in plants] Biokhimiia i fiziologiia immuniteta rastenii. Moskva, Izd-vo Akad. nauk SSSR, 1960. 350 p. (MIRA 14:2)
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RUBIN, B.A.

~~TYSHEV, G.D.~~

176

PHASE I BOOK EXPLOITATION SOV/5410

Tashkentskaya konferentsiya po mirnomu ispol'zovaniyu atomnoy energii. Tashkent, 1959.

Trudy (Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy) v. 2. Tashkent, Izd-vo AN UzSSR, 1960. 449 p. Errata slip inserted. 1,500 copies printed.

Sponsoring Agency: Akademiya nauk Uzbekskoy SSR.

Responsible Ed.: S. V. Starodubtsev, Academician, Academy of Sciences Uzbek SSR. Editorial Board: A. A. Abdullayev, Candidate of Physics and Mathematics; D. M. Abdurasulov, Doctor of Medical Sciences; U. A. Arifov, Academician, Academy of Sciences Uzbek SSR; A. A. Borodulina, Candidate of Biological Sciences; V. N. Ivashev; G. S. Ikramova; A. Ye. Kiv; Ye. M. Lobanov, Candidate of Physics and Mathematics; A. I. Nikolayev, Candidate of Medical Sciences; D. Nishanov, Candidate of Chemical Sciences; A. S. Sadykov, Corresponding Member, Academy of Sciences USSR, Academician, Academy of Sciences Uzbek SSR; Yu. N. Talanin,

Card ~~1/20~~

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

Candidate of Physics and Mathematics; Ya. Kh. Turakulov, Doctor of Biological Sciences. Ed.: R. I. Khamidov; Tech. Ed.: A. G. Babakhanova.

PURPOSE: The publication is intended for scientific workers and specialists employed in enterprises where radioactive isotopes and nuclear radiation are used for research in chemical, geological, and technological fields.

COVERAGE: This collection of 133 articles represents the second volume of the Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy. The individual articles deal with a wide range of problems in the field of nuclear radiation, including: production and chemical analysis of radioactive isotopes; investigation of the kinetics of chemical reactions by means of isotopes; application of spectral analysis for the manufacturing of radioactive preparations; radioactive methods for determining the content of elements in the rocks; and an analysis of methods for obtaining pure substances. Certain

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instruments used, such as automatic regulators, flowmeters, level gauges, and high-sensitivity gamma-relays, are described. No personalities are mentioned. References follow individual articles.

TABLE OF CONTENTS:

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Khrushchev, V. G., A. S. Lepilin, U. Ya. Margulis, S. M. Stepanov, L. I. Belen'kiy, T. V. Bromberg, and V. G. Ivliyev [Ministry of Health USSR]. Industrial Gamma-Plant for Sterilization of Medical Materials 170

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RUBIN, B.A.

Darwinism and plant physiology. Agrobiologiia no.5:744-758 S-O '60. (MIRA 13:10)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Evolution) (Botany--Physiology)

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17(4),30(1) SOV/20-124-5-58/62

AUTHORS: Rubin, B. A., Ladygina, M. Ye.

TITLE: The Effect of Streptomycin on the Greening of Seedlings (Vliyaniye streptomitsina na zeleneniye prorostkov)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 5, pp 1163-1166 (USSR)

ABSTRACT: The suppression of greening by streptomycin is connected with rules governing the changes in the oxidation system (Refs 1, 2). Besides an activation of the total vesicular breathing the activity of cytochrome oxidase and polyphenol oxidase is suppressed. In order to determine the nature of the interrelation between the two above-mentioned groups of phenomena experiments were carried out in the course of which the inhibiting action of streptomycin was eliminated by ions of some metals (iron and manganese compounds, Refs 3-5). Since manganese in the nutrient does not reduce the absorption of streptomycin by the plant (Ref 7) and eliminates the inhibition of the growth of seedlings due to streptomycin (Refs 6, 7) it was assumed that manganese influences the oxidative processes. Barley seedlings of the Wiener (Vinen) type and sunflowers of the Ryadovoy type (method according to Refs 1, 2) were used

Card 1/3

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

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for investigations. $MnSO_4 \cdot 4H_2O$ (55 mg/l) was used as manganese source, and K-Fe ethylene diamine tetraacetate (9.6 mg/l) as iron source. It may be seen from the data on table 1 that manganese and iron eliminate the inhibiting effect of streptomycin on the cytochrome oxidase. Iron showed an especially strong effect. Manganese acted in the same way on the polyphenol oxidase of the sunflower (Table 2). As may be seen from table 3 the synthesis power of chlorophyll of the plants was widely restored by Mn^{2+} and especially by Fe^{3+}. Thus, the interrelation between the displacements of the activity of oxidases forming under the action of streptomycin (which take part in electron transition) on the one hand, and the changes of the power of plant tissues to synthesize chlorophyll, on the other, was again confirmed. Moreover, it was confirmed that accordingly one of the members in the chain of chlorophyll synthesis is directly dependent on a normal functioning of the ferments of the concluding stage of oxidation. This may be the stage of the transformation of protochlorophyllide into protochlorophyll (affiliation of phytol to the porphyrin nucleus). In order to determine this fact the authors observed the fluorescence spectra of chlorophyll in living leaves (according to Ref 9. A. A. Krasnovskiy and

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

The Effect of Streptomycin on the Greening of Seedlings SOV/20-124-5-58/62

M. Byatzova assisted in the investigation). Barley seedlings served as experimental objects in the light as well as in the dark (Table 4). It may be assumed from the results that streptomycin delays the transformation of protochlorophyll into chlorophyll at a stage at which a compound with a maximum at 730 mμ is produced. This can be observed only in the light. Table 5 gives data on the changes in the pigment apparatus due to the action of streptomycin. There are 4 tables and 9 references, 7 of which are Soviet.

ASSOCIATION: Institut biokhimii im. A. N. Bakha Akademii nauk SSSR (Institute of Biochemistry imeni A. N. Bakh of the Academy of Sciences, USSR)

PRESENTED: August 29, 1958, by A. I. Oparin, Academician

SUBMITTED: August 26, 1958

Card 3/3

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17(3)

AUTHORS: Rubin, B. A., Ivanova, T. M. SOV/20-125-1-59/67

TITLE: On the System Polyphenols - Polyphenol Oxidase in Cabbage (O sisteme polifenoly - polifenoloksidaza v kapuste)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 1, pp 213-215 (USSR)

ABSTRACT: With respect to their oxidation systems plants can be divided into polyphenol-oxidase- (potato, cotton, apple tree with the mentioned ferment being highly active) and in peroxidase-plants (cabbage, onion etc). In the latter group ascorbic oxidase plays the part of the final oxidase. It is functionally related with peroxidase. The authors observed that in the case of being infected with Botrytis cinerea the color of the cabbage tissues becomes dark. It is well-known that the oxidation products of polyphenols play an important part in both the changing of color and the resistivity of the plants to parasites (Ref 2). This is why the experiments with phenol compounds were carried out on white cabbage "Amager" and "Nr Pervyy" (Nr one). The phenol compounds and phloroglucine were quantitatively determined according to the methods of references 3 and 4 (Table 1). Thus, it can be seen that the cabbage tissues are

Card 1/4

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rich in tan, i. e. much richer (by the four-fold) than potato tubers (Ref 5). The tanning complex of cabbage is also far more varied than that of potato tubers. Apart from water-soluble tans (50%) cabbage contains also alkali-soluble tans, further in both fractions also free ether-soluble polyphenols. 15-20% of the water-soluble fraction are free polyphenols, the rest being easily mobile, uncomplicated compounds. According to Kursanov they are depsides - the most simple ones in the group of condensed tannides (Ref 3). The remaining 50% of tans in cabbage consist of complicated compounds with a high molecular weight. They are insoluble in water and can only be separated after the addition of a 1% alkali lye (Ref 6). Pyrocatechin and pyrogallic groups are lacking in all fractions. By means of paper-chromatography small amounts (0.3-0.5 mg/%) of coffeic acid and chlorogenic acid (pyrocatechin derivatives) were discovered (in accordance with Ref 7). All fractions contained phloroglucine - a polyphenol with hydroxyl groups in meta-position (18 and 24% in the water and alkali-soluble fractions, respectively). It was also present in free state in the cabbage tissues (in accordance with Ref 4). Table 2 shows data

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concerning the role of the phenol compounds, in particular with respect to their taking part in oxidizing processes. Among the substrates investigated phloroglucine was the only one to be oxidized by cabbage tissue. This oxidation is suppressed by specific inhibitors of the copper-containing ferments (Table 3). From table 4 it can be seen that the addition of ascorbic acid increased the oxygen-absorption somewhat in case that phloroglucine was substituted. Table 5 shows that phloroglucine is very intensively oxidized by suspension as well as by sections from cabbage. In this connection phloroglucine for itself is twice as intensively oxidized as ascorbic acid for itself. Together, the substances were much slower oxidized. For the time being, the conclusion may be drawn from the above mentioned data that polyphenols with a meta-position of the hydroxyl groups (as phloroglucine) may often take active part in the redox-processes in plant tissues. The initially mentioned division of plants (Ref 1) has therefore probably no absolute importance. There are 5 tables and 7 references, 6 of which are Soviet.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

ANDREYENKO, S.S.; RUBIN, B.A.

Plant physiology and the problems of intensifying agriculture.
Vest. Mosk. un. Ser. 6: Biol., pochv. 19 no.5:3-10 S-O '64.
(MIRA 17:12)

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GAVRILENKO, V.F.; RUBIN, B.A.

Mg-porphyrin synthesis in isolated roots. Dokl. AN SSSR 162 no.6: 1427-1429 Je '65. (MIRA 18:7)

1. Moskovskiy gosudarstvennyy universitet. Submitted August 25, 1964.

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RUBIN, B.A.; IVANOVA, T.M.; DAVIDOVA, M.A.

Mechanism of the activation of peroxidase in an infected tissue of immune plants. Prikl. biokhim. i mikrobiol. 1 no.1:25-36 Ja-F '65. (MIRA 18:5)

1. Institut biokhimii imeni Bakha AN SSSR, Moskva.

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ZHAMIN, V.A.; VOLKOVA, L.A.; RUBIN, B.A.; GORLENKO, M.V.; PARSADANOVA, K.G., red.; GRIGORCHUK, L.A., tekhn.red.

[Problems in the development of agricultural science in the Chinese People's Republic] Nekotorye voprosy razvitiia sel'skokhoziaistvennoi nauki v KNR. Moskva, Gos.izd-vo "Vysshaia shkola," 1959. 293 p. (MIRA 13:7)
(China--Agriculture)

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RUBIN, B.A.

4) PHASE BOOK EXPLOITATION SOV/2713

International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958

Doklady sovetskikh uchenykh; poluchenie i primenenie izotopov (Reports of Soviet Scientists; Production and Application of Isotopes) Moscow, Atomizdat, 1959. 388 p. (Series: Its: Trudy, vol. 6) 8,000 copies printed.

Eds. (Title page): G.V. Kurdyumov, Academician, and I.I. Novikov, Corresponding Member, USSR Academy of Sciences; Ed. (Inside book): Z.D. Andreyenko; Tech. Ed.: Z.D. Andreyenko.

PURPOSE: This book is intended for scientists, engineers, physicians, and biologists engaged in the production and application of atomic energy to peaceful uses; for professors and graduate and nongraduate students of higher technical schools where nuclear science is taught; and for the general public interested in atomic science and technology.

COVERAGE: This is volume 6 of a 6-volume set of reports delivered by Soviet scientists at the Second International Conference on the Peaceful Uses of Atomic Energy held in Geneva from September 1 to 13, 1958. Volume 6 contains 32 reports on: 1) modern methods for the production of stable radioactive isotopes and their labeled compounds, 2) research results obtained with the aid of isotopes in the field of chemistry, metallurgy, machine building, and agriculture, and 3) dosimetry of ionizing radiation. Volume 6 was edited by: S.V. Levinskiy, Candidate of Medical Sciences; V.N. Prusakov, Candidate of Chemical Sciences; and V.V. Sedov, Candidate of Medical Sciences. See Sov/2081 for titles of volumes of the set. References appear at the end of the articles.

28. Zhadin, V.I., S.I. Kuznetsov, and N.V. Timofeyev-Resovskiy. Radioactive Isotopes for Solving Problems in Hydrobiology (Report No.2317) 335

29. Azimov, G.I. Reabsorption Phenomena in the Lacteal Gland (Report No. 2200) 347

30. Troitskiy, I.A. (Deceased). Sulfur Tracer Permeation of the Skin, Its Inclusion in the Albumen of the Wool, and Its Secretion From the Organism of the Animal (Report No. 2314) 354

31. Arifov, U.A., I.D. Artmeladze, V.A. Barnov, G.A. Osmanskiy, G.A. Kleyn, S.Z. Pashinskiy, L.M. Tkhelidze, T.V. Tsetskhladze, T.N. Chkheidze, and S.N. Shchenkov. Radiation Killing of Cocoons of the Mulberry-feeding Silkworms (Report No. 2321) 362

32. Rubin, B.A. and L.V. Metlitskiy. Studying the Effect of Ionizing Radiation on the Protoplasm of Potato Tubers With Respect to Yearlong Storage (Report No. 2131) 375

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KURSANOV, A.L., akademik, red.; NICHIPOROVICH, A.A., prof., red.; KRASNOVSKIY, A.A., prof., red.; RUBIN, B.A., prof., red.; BOYCHENKO, Ye.A., doktor biol.nauk, red.; OSIPOVA, O.P., kand.biol.nauk, red.; KLESHNIN, A.F., red.izd-va; POLYAKOVA, T.V., tekhn.red.

[Problems of photosynthesis; reports at the Second All-Union Conference on Photosynthesis, Moscow, Jan.21-26, 1957] Problemy fotosinteza; doklady na II Vsesoiuznoi konferentsii po fotosintezu, Moskva, 21-26 ianvaria 1957 g. Moskva, 1959. 747 p. (MIRA 12:12)

1. Akademiya nauk SSSR. Otdeleniye biologicheskikh nauk.
(PHOTOSYNTHESIS--CONGRESSES)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A.; OZERETSKOVSKAYA, O.L.

Hexose monophosphate respiration pathway in potato tubers.
Izv.AN SSSR.Ser.biol. no.2:257-264 Mr-Ap '59. (MIRA 12:5)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R., Moscow.
(POTATOES--DISEASE AND PEST RESISTANCE) (HEXOSE PHOSPHATES)
(OXIDATION, PHYSIOLOGICAL)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A.; METLITSKIY, L.V.; SAL'KOVA, Ye.G.; MUKHIN, Ye.N.; KORABLEVA, N.P.; MOROZOVA, N.P.

Use of ionizing radiations to control dormancy in potato tubers during storage. Biokhim.pl. i ovoshch. no.5:5-101 '59. (MIRA 13:1)

1. Institut biokhimii imeni A.N.Bakha Akademii nauk SSSR.
(Plants, Effect of gamma rays on)
(Potatoes--Storage)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A.; MIKHEYEVA, A.V.

Effect of ionizing radiation on oxidizing enzymes in potato tubers. Biokhim.pl. i ovoshch. no.5:102-112 '59. (MIRA 13:1)

1. Institut biokhimii imeni A.N.Bakha Akademii nauk SSSR.
(Plants, Effect of gamma rays on) (Potatoes)
(Oxidases)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A.; IVANOVA, T.M.

Role of amino acid oxidases in the immunity of cabbage to Botrytis cinerea. Biokhim.pl. i ovoshch. no.5:113-132 '59. (MIRA 13:1)

1. Institut biokhimii imeni A.N.Bakha Akademii nauk SSSR.
(Cabbage--Disease and pest resistance)
(Amino acids) (Oxidases)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A., prof., doktor biol.nauk

Biochemical principles of immunity in plants. Agrobiologiia no.6:894-907 N-D '59. (MIRA 13:4)

1. Institut biokhimii imeni A.N.Bakha AN SSSR.
(Plants--Disease and pest resistance)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A., prof.; CHERNAVINA, I.A.

Biochemical nature of plant chlorosis. Vest.Mosk.un.Ser.biol., pochv., geol., geog. 14 no.1:11-21 '59. (MIRA 12:9)

1. Moskovskiy gosudarstvennyy universitet, Kafedra fiziologii rasteniy.

(Chlorosis (Plants))

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A.; OZERETSKOVSKAYA, O.L. (Moskva)

Participation of direct oxidation pathway in the respiration of higher plants. Usp.sovr.biol. 47 no.1:64-79 Ja-F '59. (MIRA 12:2)

(PLANTS--METABOLISM) (GLUCOSE)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A. (Moskva)

Vladimir Ivanovich Palladin; 100th anniversary of his birth. Usp. sovr.biol 48 no.2:117-122 S-O '59. (MIRA 13:3)
(BIOGRAPHIES)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

17(1,4) SOV/20-124-4-61/67

AUTHORS: Rubin, B. A., Germanova, V. F.

TITLE: On the Synthesis of Pigments in Roots (O sinteze pigmentov v kornyakh)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 4, pp 940-943 (USSR)

ABSTRACT: In their previous works (Refs 1,2) the authors had found that the pigment synthesis in leaves is largely dependent on the peculiarities and properties of the root systems. From this it can be assumed that the roots supply the supraterraneous plant parts with certain compounds that are indispensable in the synthesis of the pigment molecule. The transport of biocatalysts by the roots - a process which affects the intensities and directions of the synthesis reactions - is not out of question either. One of the methods of clarifying this problem is the study of the pigment formation directly in the root tissues. In many plants roots turn green with the action of light (Refs 3-5). The question was to be clarified whether the influence of the roots on the pigment formation in leaves is connected with the capacity of the roots to effect the final pigment synthesis immediately in their own tissues. K. V. Yegorova and M. A. Khrabrova participated in the work. Horse bean (Vicia faba), sunflowers (Helianthus annuus), and Tropaeolus

Card 1/3

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majus were used as test objects. These plants differ with regard to their contents of yellow and green pigments in the leaves. In addition to these, peas (Pisum sativum) and corn (Zea mais) were also investigated. The roots of the test plants were irradiated, those of the controls were screened off by means of black paper. After 10-15 days the contents of yellow and green pigments as well as the activities of the ferments cytochromoxydase, catalase, and peroxydase were determined. The results (Table 1) show that the synthesis intensities of the green and yellow pigments in the roots of horse bean, sunflower, and Tropaeolus differ in the same way as the pigment contents in their leaves do. The intensity decreases from horse bean to Tropaeolus. The latter plant forms only chlorophyll traces in its roots. The largest quantities of carotinoids were found in sunflower roots and leaves. Table 4 shows a similar correlation in peas and corn. The determination results of the porphyrin containing ferments (see above) confirm the earlier results (Refs 1,6,7), according to which there is an interdependence between the capacity of pigment synthesis by the tissue and the activities of cytochromoxydase and catalase therein. Rapidly and intensively greening roots of legumes and of sunflower have high levels of activity of the two ferments, whereas this activity is

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much lower in Tropaeolus and in corn (Tables 3,4). On the irradiation of the roots of all test plants the activity levels of the iron-porphyrin pigments in them were lowered. In plants where the activity levels of the two ferments are high in the leaves they are also high in the roots (Tables 3,4). The above results have the correctness of the authors's theorem according to which the reactions in the root systems play a significant role in the biosynthesis processes of the plant organism pigments. They testify to the fact that differences in the influence of the root systems of different plant species on the pigment synthesis in the leaves are in accordance with differences in the synthesizing capacity of the roots in these plant species.-There are 1 figure, 5 tables, and 7 references, 4 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: August 25, 1958, by A. I. Oparin, Academician

SUBMITTED: August 21, 1958

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

f. Absorption and translocation of mineral elements [illegible] leaves of plants. [illegible] and [illegible] Sciences, Moscow

g. Pathologic processes under the conditions of [illegible] balances. [illegible], A N Bakh Institute of [illegible] Academy of Sciences [illegible], Moscow

h. The role of oxidative enzymes in the ripening [illegible] fruits. [illegible], A N Bakh Institute of Biochemistry, Academy of Sciences, [illegible], Moscow

i. Dependence of mineral composition of plants on [illegible] conditions. [illegible] I Kurtishki, Academy of Sciences [illegible]

j. Introduction of topic at seminar on growth [illegible] A F [illegible] and I N [illegible], V L Komarov Academy of Sciences, USSR, Leningrad

k. Nucleic acids and plant [illegible]. V [illegible] Branch of Academy of Sciences USSR, [illegible]

l. The state of deoxyribonucleic acid in the [illegible] in the plant cell. V G [illegible], S [illegible] A F [illegible] and I F [illegible], [illegible] Sciences, [illegible], Moscow, USSR

m. Biochemical properties of plant cell nuclei. [illegible] N A [illegible], A N Bakh Institute of Biochemistry [illegible] USSR, Moscow

n. Interrelationships between respiration and [illegible] [illegible], V L Komarov Botanical Institute, A[illegible] Leningrad

o. Oxidases other than cytochrome oxidase in pl[illegible] A N Bakh Institute of Biochemistry, Academy [illegible]

p. On vernalization problems. V I [illegible], In[illegible] Leningrad, USSR

q. Promoting effect of micronutrients on the [illegible] unfavorable conditions. M Y [illegible], Acad[illegible] Leningrad

r. L'application des changements morphologiques reproductifs embryonnaires pour le diagnos[illegible] engrais. V V [illegible], L'Academie des Sci[illegible]

s. Peculiarities of the changes of physiologi[illegible] correlated with frost hardiness. I N [illegible] [illegible], A I [illegible], and N V [illegible] Academy of Sciences, USSR, Leningrad

t. Photoperiodism in Grass. B S [illegible], La[illegible] Leningrad, USSR

u. The vegetation of natural grasslands of [illegible]

v. The cytology of fertilization in flowerin[illegible] [illegible], Botanical Institute, Academy [illegible]

w. The correlation between the concepts "for[illegible] biogeocenoses" and their importance for [illegible] V N [illegible], Forest Institute, Academy [illegible]

Report submitted but not presented at the [illegible] Montreal, Canada, 10-14 Aug 1966.

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, Boris Anisimovich, prof., doktor biolog.nauk; STAROSTENKOVA, M.M., red.; SAVCHENKO, Ye.V., tekhn.red.

[Plant physiology and agriculture] Fiziologiia rastenii v pomoshch' zemledeliiu. Moskva, Izd-vo "Znanie," 1959. 31 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.8, Biologiia i meditsina, no.18) (MIRA 12:11)

(Plant physiology)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, Boris Anisimovich, prof.; POTAPOV, N.G., red.; PARSADANOVA, K.G., red.izd-va; TITOVA, L.L., tekhn.red.

[Lectures on plant physiology] Lektsii po fiziologii rastenii. Moskva, Gos.izd-vo "Vysshaia shkola," 1959. 221 p. (MIRA 13:4)

(Plant physiology)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

SOV/20-123-2-35/50

17(3)

AUTHORS: Sokolova, V. Ye., Savel'yeva, O. N., Rubin, B. A.

TITLE: The Character of the Transformation of Chlorogenic Acid in Potato Tubers Affected by Phytophthora Infestans (Kharakter prevrashcheniy khlorogenovoy kisloty v klubnyakh kartofelya, porazhennykh Phytophthora infestans)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 2, pp 335-338 (USSR)

ABSTRACT: The role played by the phenol compounds as a resistance factor of the plants to the phytopathogenic agents becomes more and more popular. The results of the experiments that tried to find a correlation between the content of tanning principles and the resistivity of the plant remained unclear; the reason for this is the fact that the formation of specific protective substances from transformed phenols represents a response reaction of the plant to the invasion of a pathogenic microorganism. Therefore the finding of such a reaction in a healthy, not affected tissue is almost impossible. As a rule, the protecting tanning principles are formed more intensely in resistant plant types and geni (Refs 1,2). Most of the scientists tend to believe

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SOV/20-123-2-35/50

The Character of the Transformation of Chlorogenic Acid in Potato Tubers Affected by Phytophthora Infestans

that the protective effect is mainly realized by oxidative phenol transformations. These oxidized products form a type of chemical barriers that stop the spreading of the infection. Chlorogenic acid and caffeic acid were several times mentioned as such substances. In earlier experiments carried out in the laboratory where the authors work (Ref 5) it was found that the potato type "Moskovskiy", which is resistant to the Phytophthora infestans, has about the double amount of chlorogenic acid as compared to that of the sensitive type "Rannyaya roza". It was also shown that the polyphenol oxydase is highly activated in tubers of the resistant type under the influence of the infection, whereas this ferment remains unchanged in the sensitive type. As chlorogenic acid is the main substrate of the polyphenol oxidase in the potato it must be assumed that the affection of the tubers by the Phytophthora leads to an increased consumption of chlorogenic acid. In this connection it was interesting to find out the actual role played by this acid in the resistance to Phytophthora of the potato, and especially if the fungicide effect originates from this acid

Card 2/4

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

SOV/20-123-2-35/50

The Character of the Transformation of Chlorogenic Acid in Potato Tubers Affected by Phytophthora Infestans

or from its derivatives. Sections of tubers of the mentioned types were infected under optimum conditions with Phytophthora. Chromatographic (Fig 1) and spectrophotometric (Table 1) investigations yielded the same results: apparently the invasion of the Phytophthora into the tuber of the sensitive type causes a movement of the chlorogenic acid from the healthy parts to the place of infection. The acid accumulates without suppressing the development of the fungi. The content of chlorogenic acid in the necrotic tissue layer of the affected place of the resistant type was 2.5 times lower than that in the healthy parts of the tuber. Apparently, in the resistive types this acid is immediately used for forming several derivatives that have hitherto not been identified. The authors express assumptions as to the nature of these substances and their process of formation; further investigations are necessary to prove they are right. There are 1 figure, 1 table, and 6 references, 2 of which are Soviet.

Card 3/4

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

CHERNAVINA, I.A., RUBIN, B.A., NIKOLAYEVA, L.F.

The ability of chlorophyll formation and oxidative systems in conifers. Nauch.dokl.vys.shkoly; biol.nauki no.1:144-148 '58 (MIRA 11:8)

1. Predstavlena kafedroy fiziologii rasteniy Moskovskogo gosudarstvennogo universiteta im. M.V. Lomonosova.
(CONIFERAE)
(CHLOROPHYLL)
(OXIDATION--REDUCTION REACTION)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A.; SAL'ZOVA, Ye.G.

Some features of dehydrogenase activity in apple tissues. Biokhim. pl. i ovoshch. no.4:5-23 '58. (MIRA 11:10)

1. Institut biokhimii imeni A.N. Bakha AN SSSR.
(Apple) (Dehydrogenase)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A.; CHERNAVINA, I.A.; DOROFEYEVA, Ye.V.

Effect of different light conditions on the cytochemical characteristics of growing points in wheat. Nauch.dokl.vys. shkoly;biol.nauki no.4:165-168 '58. (MIRA 11:12)

1. Rekomendovana kafedroy fiziologii rasteniy Moskovskogo gosudarstvennogo universiteta imeni M.V.Lomonosova.
(Wheat) (Plants, Effect of light on)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

26-58-5-55/57

AUTHOR: Rubin, B.A., Professor

TITLE: Anthocyans (Antotsiany)

PERIODICAL: Priroda, 1958, Nr 5, p 127 (USSR)

ABSTRACT: Anthocyan can be obtained from red cabbage leaves by crushing them thoroughly and pouring hot water over the pulp. A more scientific method is that of chromatography on paper.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova (Moscow State University imeni M.B. Lomonosov)

AVAILABLE: Library of Congress

Card 1/1 1. Plant pigments - Separation

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

VAKLINOVA, S.G.; DOMAN, N.G.; RUBIN, B.A.

Effect of different nitrogen forms on the assimilation products of leaves and their distribution in aerial and underground organs of corn seedlings [with summary in English]. Fiziol.rast. 5 no.6:516-523 N-D '58. (MIRA 11:12)

1. Institut rasteniyevodstva Bolgarskoy AN, Sofiya; Institut biokhimii imeni A.N. Bakha AN SSSR, Moskva.
(Corn (Maize)--Fertilizers and manures)
(Plants, Effect of nitrogen on) (Plants--Assimilation)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

26-58-7-21/48

AUTHORS: Rubin, B.A., Professor, Metlitskiy, L.V., Khrushchev, V.G.

TITLE: The Use of Gamma Rays in Long-Period Storage of Potatoes (Ispol'zovaniye gamma-luchey pri dlitel'nom khranenii kartofelya)

PERIODICAL: Priroda, 1958, Nr 7, pp 91-94 (USSR)

ABSTRACT: Large amounts of potatoes stored over a long period of time at temperatures above 5°C are subject to fast rotting, while at temperatures below 5°C they soon acquire a sweetish taste, take a longer time until they are sufficiently cooked and are inclined to get black spots when being cooked. Dusting with 3.5% of methyl ether of alpha-naphthyl acetic acid preserves the bulbs over an extended period of time but makes them an easier prey to the attacks of microorganisms. X-ray doses of 10,000 to 16,000 r applied to the potatoes at normal temperatures kept them fresh for 8 months. By their physical nature and biological effect, gamma rays are close to X-rays, but can be used easier under normal conditions. Their application for potato storage purposes, however, remains in the experimental stage, since the changes occurring in the potato tissues have not been studied sufficient-

Card 1/3

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

26-58-7-21/48

The Use of Gamma Rays in Long-Period Storage of Potatoes

ly . This was done by the authors of the article together with Ye.T. Mukhina, Ye.T. Sal'nikova, N.P. Korableva, A.V. Mikheyeva and N.P. Morozova, in order to find the best factors for gamma radiation application. It was found out that the meristematic tissues stay alive at a radiation dose of up to 50,000 r, while they undergo changes at 10,000 r, such as a reduction of nucleic acids by 10% which increases to 25% within 2 months. Doses of 100,000 r killed the Phytophtora infestans fungus. The Institut pitaniya AMN SSSR (The USSR Academy of Medical Sciences' Food Institute) has for several years conducted experiments with animals that were fed with potatoes radiated with doses of up to 40,000 r. No negative results were observed. The vitamin C content is reduced, decreasing immediately upon the radiation but increasing again with time, and attaining the normal level in spring. A dose of 10,000 r gave the best results for a period of 300 days, 10% losses as compared with 30% in untreated potatoes. The authors suggest a mobile irradiation station of a simple construction principle sufficient for the radiation of 25 to 30,000 tons of potatoes.

Card 2/3

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

26-58-7-21/48

The Use of Gamma Rays in Long-Period Storage of Potatoes

There is 1 photo and 1 figure.

ASSOCIATION: Institut biokhimii imeni A.N. Bakha AN SSSR - Moskva (Institute of Biochemistry imeni A.N. Bakh of the AS USSR - Moscow)

1. Potatoes--Storage 2. Gamma rays--Applications

Card 3/3

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A.

AUTHOR: None Given

TITLE: The 19th Timiryazev Reading (K. A. Timiryazevskoye chteniye)

PERIODICAL: Vestnik Akademii nauk SSSR, 1956, No 5, pp. [illegible] (USSR)

ABSTRACT: This reading took place on May 29 in the building of the Biologo-pochvennyy fakul'tet Moskovskogo universiteta [illegible] Leninskikh gorakh (Department of Biological Soil Science at the Moscow University in the Lenin Mountains). It was dedicated to the memory of K. A. Timiryazev. Doctor of Biology B. A. Rubin gave a lecture on respiration and the role played by it in plant immunity. He emphasized that Timiryazev was greatly attracted by problems of adaption, which were further discussed in detail by the author. Research in this line is also conducted by the collective of the Laboratoriya biokhimii immunitete rasteniy Instituta biokhimii im. A. N. Bakha Akademii nauk SSSR (Laboratory of the Biochemistry of Plant Immunity at the Institute of Biochemistry imeni A. N. Bakh, AS USSR), which is under the supervision of the lecturer. The collaborators of the Kafedra fiziologii rasteniy Moskovskogo universiteta (Department of Plant Physiology at the Moscow

Card 1/2

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University, of which the lecturer is the head, also participate in this work.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A., METLITSKIY, L.V.

Effect of ionizing radiations on metabolism in the storage organs of plants [with summary in English]. Zhur.ob.biol. 19 no5:387-396 S-O '58 (MIRA 11:10)

1. Institut biokhimii AN SSSR.
(PLANTS, EFFECT OF RADIATION ON)
(POTATOES)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A.; IVANOVA, T.M.; DAVYDOVA, M.A.

Peroxidase synthesis in infected cabbage tissues as an immunity reaction. Dokl. AN SSSR 158 no.6:1447-1450 O '64. (MIRA 17:12)

1. Institut biokhimii im. A.N. Bakha AN SSSR. Predstavleno akademikom A.I. Oparinym.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A.; IVANOVA, T.M.

Oxidative conversion of amine acids during the interaction of cabbage tissues with the fungus Botrytis cinerea [with summary in English]. Biokhimiia 23 no.4:540-546 Jl-Ag '58.
(MIRA 12:3)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R., Moscow.

(FUNGI,
Botrytis cinerea interaction with cabbage & eff. on oxidative conversion of amino acids (Rus))
(VEGETABLES,
cabbage, oxidative conversion of amino acids, eff. of Botrytis cinerea (Rus))
(AMINO ACIDS, metabolism,
cabbage, eff. of Botrytis cinerea on oxidative conversion (Rus))

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A., GERMANOVA, V.F. (Moskva)

Role of roots in the vital processes of plants. Usp.sovr.biol. 45 no.3:366-383 My-Je '58 (MIRA 11:8)
(ROOTS (BOTANY))

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A. (Moskva)

Work in the field of plant physiology in the Chinese People's Republic. Usp.sovr. biol. 46 no.1:92-105 Jl-Ag '58 (MIRA 11:9)
(CHINA--BOTANICAL RESEARCH)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A., prof.

Anthocyanins. Priroda 47 no.5:127 My '58. (MIRA 11:5)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Anthocyanins)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A., prof.; METLITSKIY, L.V.; KHRUSHCHEV, V.G.

Use of gamma rays in prolonged storage of potatoes. Priroda 47 no. 7:91-94 Jl '58. (MIRA 11:8)

1. Institut biokhimii im. A.N.Bakha AN SSSR, Moskva.
(Potatoes--Storage)
(Plants, Effect of Gamma rays on)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

20-

AUTHORS: Rubin, B. A., Vaklinova, S. G.

TITLE: The Influence of the Form of Nitrogen Upon the Accumulation of Chlorophyll and Upon the Oxidative System in *Zea mays* L. (Vliyaniye formy azota na nakopleniye khlorofilla i okislitel'nuyu sistemu kukuruzy)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 119, Nr 1, pp. 129-132 (USSR)

ABSTRACT: Several works (references 1-3) are devoted to the investigation of different doses of nitrogen as a factor influences the intensity of photosynthesis as well as the nature of the products of the latter. The problem of the influence of different forms of nitrogen mostly was not taken into consideration. From publications (references 4-8) is known that by a nitrate food the quantity of organic acids in the plants increases as compared to plants with ammonia food. N. S. Turkova (ref. 9) advocates an opposite opinion. The object of the present paper was the investigation of the influence of these two forms of nitrogen food upon the quantitative content of dyes and upon the activity of some oxidative-reductive processes. The experiments were performed

Card 1/4

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in 2 series: series I. Maize plants were cultivated in light as liquid cultures. The variants were: 1) control - in water without addition of nitrogen; 2) on nitrate-nitrogen as $NaNO_3$; 3) on ammonium nitrogen as $(NH_4)_2SO_4$. Series II. The influence of NO_3^- and NH_4^+ upon the greening of the plants was determined. The variants were as in series I. The plants were kept in the dark for 5 days and then put into the light. As is to be seen from table 1 the influence of both forms of nitrogen upon the development of the plants is unequal. The plants on nitrate-nitrogen developed best. As well the weight as the length of the stem superior to those of the plants with ammonia-nitrogen. Both forms of nitrogen suppress the length of the roots the weight of which, however, exceeds that of the control (agrees with reference 13). In the case of nitrate-nitrogen-food the quantity of a- and b-chlorophyll in all tests was higher than in the control- and ammonia--plants (table 2). The latter plants, cultivated in the light, exceeded the control plants with regard to the chlorophyll content. But when these plants were first kept in the dark and then brought into the light, their quantity of chlorophyll was considerably smaller than in the control. The ratio

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between a- and b-chlorophyll independent on the illumination decreases by nitrate-nitrogen and increases by ammonia--nitrogen. That means that the more intensively oxidated chlorophyll-form (form b) is synthesized on nitrate nitrogen. The activity of the oxidative enzymes may, so to speak, serve as index of the oxidative-reductive regime in the plant tissues. Table 3 shows that the activity of the catalase and peroxydase as well in the leaves as in roots is higher in plants which were cultivated on ammonia-food. In order to find out whether this increased activity has to compensate the lack of active nitrate-oxygen in the plant, experiments were performed in which part of the plants was continuously exposed to the air, whereas the other part was cultivated under oxygen deficiency. Table 4 shows that the plants on nitrate nitrogen thrive very well even without additional exposure to the air. But in plants on NH_3 without exposure to the air of the organs above the ground the growth of the latter and that of the roots is retarded (in agreement with reference 14). The activity of the catalase decreases in the variant with nitrate nitrogen, where the chlorophyll

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17(3)

AUTHORS: Rubin, B. A., Mikheyeva, A. V. SOV/20-122-5-33/56

TITLE: The Effect of Ionizing Radiation Upon the Chemical Composition of Mitochondria (Vliyaniye ioniziruyushchey radiatsii na khimicheskiy sostav mitokhondriy)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 5, pp 867 - 869 (USSR)

ABSTRACT: Investigations formerly conducted by the authors showed (Ref 1) that the oxidative ferments in potato tubers can be strongly influenced by irradiation with γ-rays of radioactive Co^{60}; these ferments are concentrated in the mitochondria of the eyes of the tubers. In this process, the various oxidases change not only to a different degree but also in opposite directions. The activity of the same ferments, however, remains the same under the influence of an equal dose of γ-rays both in the total extract of eyes and flesh as well as in the mitochondria isolated in the cells of the flesh (Ref 1). On the strength of these data, we can assume that the high sensitivity

Card 1/4

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of oxidative ferments concentrated in the mitochondria of the eyes is effected by the disturbances caused by irradiation of the structure chemical completeness of these organoids. In connection with this mitochondria were examined as to their chemical composition. The mitochondria were isolated both from previously irradiated and non-irradiated tubers. Mitochondria consist as it is known of lipoproteids and nucleoproteids. Structures consisting of these substances play an important role in fermentative processes and sorption processes. Table 1 gives data concerning the measurement of content of nuclein acid in fractions of the eyes of irradiated and non-irradiated tubers. The content of nucleinic acid in mitochondria decreases immediately after irradiation until it remains constant after a certain period of time (up to 5 months). The results, however, largely depend on the quantity (weight) of the mitochondria isolated from the same quantity of eyes. It differs widely in irradiated and non-irradiated

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tubers. As can be seen in table 1, the content of phospholipids increases, especially in the mitochondria (up to 245%). Apparently the influence of ionizing radiation weakens the bond between phospholipids and proteins. Consequently the amount of extractible phospholipids increases. The difference in content of phospholipids between irradiated and non-irradiated tubers does not disappear in long storage. There is no noticeable change in the content of phospholipids and nucleinic acids in the mitochondria obtained from the flesh (Table 2). Also the isolatable amount of mitochondria is not affected. Thus the activity of the oxidative ferments in the mitochondria of the flesh is not changed by irradiation. There are 2 tables and 6 references, 3 of which are Soviet.

ASSOCIATION: Institut biokhimii im. A.N.Bakha Akademii nauk SSSR (Institute of Biochemistry imeni A.N.Bakh of the Academy of Sciences USSR)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B. A.

AUTHORS: Ladygina, M. Ye., and Rubin, B. A. 20-3-30/46

TITLE: On the Effect Produced by the Toxin of Botrytis Cinerea upon the Cytochromoxidase of Cabbage (O deystvii toksina Botrytis cinerea na tsitokhromoksidazu kapusty).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 3, pp. 459-462 (USSR)

ABSTRACT: The most important rôle of the chromoxitase in the respiration of vegetal organisms is generally acknowledged at present. The biological importance of this ferment, however, remains unclear in many respects. The distinctly marked lability and variability under the influence of various conditions and factors form one of the reasons of this lack of clearness. The cytochromoxidase is contained not only in young, but also in ripe tissues in which case its activity decreases with the aging of the organism. Amongst others it would be important to clarify how far the pathogenous micro-organisms act upon this activity. Moreover this question is of interest because the oxidation processes will play an important rôle in the phenomena of resitivity. The present treatise is devoted to the problem of displacements of activity in the action of cytochromoxitase which are

Card 1/4

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On the Effect Produced by the Toxin of Botrytis Cinerea Upon the Cytochromoxidase of Cabbage 20-3-30/46

produced by infection. Two species of cabbage served as experimental object. Nr 1: - premature and unfit for storage, as well as the "Amager"-species which is late and resistant. The activity of the said ferment was determined by the Wartburg- apparatus for the absorption of oxygen and by the spectrophotometer SF-4 according to Webster. In the first tests the effect of toxin of the fungus,- referred to in the title, on various species of cabbage by means of the vacuum infiltration method was studied. In the case of the "Amager" species a very intensive increase of activity of the chromoxidase (3.5 times) has taken place, whereas species Nr 1 suffered a decrease of activity of almost 50 % after a 22 hours action of toxin. The influence of a direct infection was studied in the following tests. Variations of activity similar to the previous ones have taken place. This is caused by the different grade of resistence of the two species. Sound tissues of the cabbage plants of the two species show a rather similar activity of the cytochromoxidase. The differences occur as a direct consequence of the intervention

Card 2/4

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On the Effect Produced by the Toxin of Botrytis Cinerea Upon the Cytochromoxidase of Cabbage 20-3-30/46

of the parasite. The resitivity was also expressed by the extent of the necrosis spots round the infected spot on the leafs of the two species: With species Nr 1 it was large, whereas in the case of "Amager" it was only as large as the infected spot itself. Towards the end of the storage period the activity of the chromoxidase decreases also in the case of "Amager". At that time the activity of the ferment of both species was equal. The causes for the character of reaction of one and the same fermentative system on species of plants of different resistivity remain unclear so far. Special tests with isolated and purified chromoxidase preparation (according to Millerd, a.o.) have shown that it does not exercise any inhibiting effect on the toxin. The above observations show that the influence of toxin on Botrytis cinerea is in first line due to the reaction of this factor on the protoplasm of the living cell. Similar conclusions could be drawn at the study of fungus Phytophtora infestans on potatoes. Consequently the influence of toxin on cytrochromoxitase is not clear. It is determined by the chemical physiological pecularities of the protoplast of

Card 3/4

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On the Effect Produced by the Toxin of Botrytis Cinerea Upon the Cytochromoxidase of Cabbage 20-3-30/46

which depends the grade of constancy and stability of the ferment against the products of the living activity of the fungus. There are 1 figure, 2 tables and 8 references, 6 of which are Slavic.

ASSOCIATION: Institute of biochemistry imeni A.N. Bakh of the AN USSR (Institut biokhimii im. A. N. Bakha Akademii nauk SSSR)

PRESENTED: June 20, 1957, by A. I. Oparin, Academician

SUBMITTED: June 10, 1957

AVAILABLE: Library of Congress

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B. A. and METLITSKIY, L. V.

"Application of Ionizing Radiations to Regulating Potato and Vegetables Rest and All-Year-Round Storage."

paper to be presented at the 2nd UN Intl. Conf. on the peaceful uses of Atomic Energy, Geneva, 1 - 13 Sept 58.

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A.

20-5-45/60

AUTHOR CHERNAVINA, I.A., RUBIN, B.A. and NIKOLAYEVA, L.F.

TITLE On the Participation of Cytochromoxidase in the Process of Chlorophyll Synthesis. (K voprosu ob uchastii tsitokhromoksidazy v protsesse sinteza khlorofilla.- Russian)

PERIODICAL Doklady Akademii Nauk SSSR 1957 Vol 114 Nr 5, pp 1080-1083 (U.S.S.R.)

ABSTRACT The main part of the investigations of pigment biosynthesis in the plastics is at present devoted to the disclosure of the chemism of this process. Much attention is paid to the clarification of the basic steps of protochlorophyll and chlorophyll formation. The enzymatic mechanism of the latter has, however hitherto been very little clarified. There exist enough data in publications which refer to the importance of the oxidizing-reducing regime of the tissues for the chlorophyll synthesis. The majority of studies of this kind is dedicated to the first stage of becoming green - the formation of the colorless predecessor of chlorophyll. The second stage, transformation of protochlorophyll to chlorophyll, is, on the whole, considered to be

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20-5-45/60

On the Participation of Cytochromoxidase in the Process of Chlorophyll Synthesis.

a photochemical process and has been little studied. It is by no means impossible that the role played by light in this case partially consists of the activation of the enzyme systems which participate in the chlorophyll synthesis. By a large number of experimental data the close connection between photosynthesis and respiration was found out, as well as the common nature of chemical reactions and enzyme systems which are responsible for the development of these processes. In publications of recent years a number of references can be found which allow the assumption that in green plants an enzyme such as cytochromoxidase participates not only in the respiration process, but also in the photosynthesis reactions which take place in the dark and in the processes of chlorophyll formation. In earlier investigations carried out by the authors it was shown that the activity of cytochromoxidase in the leaves of aetiolated wheat germs is rapidly increased by influence of light. This becomes still more obvious with blue light. A similar dependence was also observed for the formation of chlorophyll. It is obvious that two processes which identically react to the modification of any factor must not be connected

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On the Participation of Cytochromoxidase in the Process of Chlorophyll Synthesis.

with each other. The study of the influence of some inhibitors of the oxidizing enzyme systems upon the processes of greening may serve as one way to a solution of the problem of the connection between chromoxidase and chlorophyll formation. Besides specific compounds influencing the whole complex of metalliferous enzymes the authors examined also such compounds the influence of which on respiration is brought about by the cytochrome system. From the data of tab.1 it may be seen that an infiltration of sodium-azide and -fluoride in aetiolated wheat leaves sharply suppresses the formation of chlorophyll. The results with cyanide are totally different: NaCN in all tests stimulated chlorophyll formation. Respiration as against control is increased. The nature of this phenomenon is not yet clear. Thus the results indicate that the substances which inactivate the system of - Fe, Cu-proteids, at the same time have a suppressing effect on the process of the biosynthesis of green pigments. This does not

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20-5-45/60

On the Participation of Cytochromoxidase in the Process of Chlorophyll Synthesis.

offer any possibility to estimate the participation of individual oxidases in chlorophyll formation which form part of the complex of metalliferous enzymes. Tests on the specific inactivation reaction of cytochromoxidase by CO were made. CO has an abruptly suppressing effect on chlorophyll synthesis. Further evidence for the participation of cytochromoxidase in chlorophyll biosynthesis was obtained by tests with malonic acid. Its infiltration suppresses the ability of chlorophyll synthesis in wheat germs. Succinic acid was of an opposite effect. It also neutralizes the inhibiting action of malonic acid. From the results it might be concluded that the process of chlorophyll synthesis is closely connected with the activity of the enzyme of the Fe-proteid group, namely the cytochromoxidase. Specific poisons inhibiting the individual members of the cytochrome system, suppress the chlorophyll biosynthesis. Removal of enzyme poisons enables the reestablishment of the process of biosynthesis of green pigments in these tissues.
(3 Tables, 1 Slavic reference)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

On the Participation of Cytochromoxidase in the Process of Chlorophyll Synthesis. 20-5-45/60

ASSOCIATION: "M.V. Lomonosov" Moscow State University. (Moskovskiy gosudarstvennyy universitet im M.V. Lomonosova)

PRESENTED BY: A.I. Oparin, member of the Academy.

SUBMITTED: 25.2.57

AVAILABLE: Library of Congress.

CARD 5/5

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A.

AUTHORS: Rubin, B. A., and Khandobina, L. M. 20-2-32/50

TITLE: The Action of Sodium Fluoride Upon the Respiration of Intact Carrots and Carrots Infected With Phoma Rostrupii (Deystviye ftoristogo natriya na dykhaniye zdorovoy i porazhennoy fomozom morkovi)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 2, pp. 277 - 279 (USSR)

ABSTRACT: The increase in the intensity of respiration belongs to the characteristic change of the physiological processes occurring in higher plants under the influence of an infection. In the investigations made by the authors a 2,5 - 3 fold increase as compared to the normal intensity was observed beside an activation of the polyphenoloxidase and the peroxidase (sometimes up to 9 - 11 fold). This increase in intensity shall be considered one of the most marked protective functions of the plant organism. The displacements occurring here are not only quantitative, but they are also connected with a qualitative reconstruction of the process. Therefore the changes in the oxidation-metabolism of the plant cell which are caused by pathogenic microorganism shall be thoroughly studied. The authors studied the problem mentioned in the title in intact carrots and in carrots infected with Phoma rostrupii.

Card 1/3

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

The Action of Sodium Fluoride Upon the Respiration of Intact Carrots and Carrots Infected With Phoma Rostrupii 20-2-32/50

It is known that NaF acts upon the first stage of respiration - glycolysis - by suppressing the oenolase. Phosphorylization reactions are also supposed to be suppressed and the cytochromium system to be influenced. Two species of carrots: Nant's (early) and the Moscow winter carrot were artificially infected with pure culture of the fungus Phoma rostrupii. The control carrots were like the infected ones cut in. The introduction of NaF was performed by means of vacuum-infiltration; control roots were infiltrated with water. From tables 1 - 3 may be seen that NaF (table 1) greatly reduces the respiration of intact carrots or completely suppresses. In infected carrots, however, the separation of CO_2 amounted to 1/3 of the control. In order to clear up the qualitative reconstruction of the respiration processes, the influence of NaF on the respiration of the mycelium of Phoma rostrupii was investigated. NaF increased oxygen absorption and the separation of CO_2 in younger mycelium, whereas a 30 - 35 days old mycelium showed almost no influence of NaF. In a 70 days old culture the respiration was considerably stimulated. In a longer lasting cultivation on carrot extract Phoma rostrupii apparently feels a lack of nutritive substances which form a respiration substratum. This

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

The Action of Sodium Fluoride Upon the Respiration of Intact Carrots and Carrots Infected With Phoma Rostrupii 20-2-32/50

fact possibly entails a suppression of respiration, especially during the first stage of glycolysis; it is very well possible that exactly this circumstance leads to the fact the NaF at this time does not suppress the respiration of the mycelium. It is finally not out of the question that in the above-mentioned changes the portion of a direct oxidation in carrots also increases. The problem requires further studies. There are 3 tables and 11 references, 7 of which are Slavic.

ASSOCIATION: Moscow State University imeni M.V. Lomonosov (Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova)

PRESENTED: June 7, 1957, by A.I. Oparin, Academician

SUBMITTED: June 4, 1957

AVAILABLE: Library of Congress

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Card: 1/1

Country : USSR
Category : Plant Physiology, Respiration and Metabolism. I

Abs. Jour.: Ref. Zhur.-Biologiya No. 11, 1958. No. 48524

Author : Rubin, B.A.; Akmenova, V.A.
Institute : Inst. of Biochemistry, Academy of Sciences USSR
Title : The Function of the Polyphenolase System in Protective Reactions of Potatoes Against Phytophthora infestans
Orig. Pub.: Biokhimiya, 1957, 22, No. 1-2, 202-209

Abstract : Determinations were made of the amount of chlorogenic acid (by paper chromatography treating the eluates through Hoffner's reagent with colorimetric staining), polyphenoloxydase activity (in a Warburg apparatus, according to the oxidation rate of the system of chlorogenic acid and hydroquinone by means of tuber tissue sections), and deshydrases (by the Tunberg method with a phosphate buffer

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

Country : USSR
Category : Plant Physiology. Respiration and Metabolism. I

Abs Jour. : Ref. Zhur.-Biologiya No. 11, 1958. No.48524

Author :
Institute :
Title :

Orig. Pub.:

Abstract : at pH 7). The Phytophthora mycelia did not synthesize enzymes of the polyphenoloxidase type and contained dehydrases of succinate and citric acids, ethyl alcohol, sodium glycerophosphate, succinodehydrase and isocitricodehydrase. Tubers of the Moskovskiy Ustoychivyy (Moscow Resistant) variety had twice as much chlorogenic acid as the Rannyaya Roza (Early Pink) variety, which is quite vulnerable. Phytophthora infection activated the

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Country : USSR
Category : Plant Physiology. Respiration and Metabolism. I

Abs. Jour.: Ref. Zhur.-Biologiya No. 11, 1958. No. 48524

Author :
Institute :
Title :

Orig. Pub.:

Abstract : polyphenoloxidase and suppressed dehydrases in the root tissue of the resistant variety, thus producing an accumulation of quinones; in the vulnerable variety dehydrases were activated and the polyphenoloxidase activity was either stabilized or reduced. Changes in the layers closest to the infection were more pronounced. Fungous toxins had no effect on polyphenoloxidase and

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RUBIN, B.A.; LADYGINA, M.Ye.

Relation of ferroporphyrins to magnesium porthyrines [with summary in English]. Biokhimiia 22 no.6:984-990 N-D '57. (MIRA 11:2)

1. Institut biokhimii im. A.N.Bakha Akademii nauk SSSR, Moskva.
(CHLOROPHYLL, metabolism,
eff. of streptomycin (Rus))
(STREPTOMYCIN, effects,
on chlorophyll metab. (Rus))

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

CATEGORY : USSR M
CATEGORY : Cultivated Plants, Potatoes, Vegetables, Cucurbits.
ABS. JOUR.: Ref Zhur.-Biologiya, No. 2, 1959, No. 1643

Author : Rubin, B.A.; Savel'yeva, O.N.
INST. : Biochemistry Inst., AS USSR
TITLE : Physiologic Characteristics of Potato Cultivated from Various Parts of the Tuber.

ORIG. PUB.: Vestn. s.-kh. nauki, 1957, No. 12, 83-92

ABSTRACT : The biochemistry institute of the Academy of Sciences of the U. S. S. R. since 1949 carried out experiments with Zarnitsa and Lorkh potato varieties in order to study hereditary changes in various parts of plants. The plants, grown from adventitious buds of various parts of tuber tissue, were characterized by changes in all physiological processes in the intact plant. Biochemical properties, appearing in the plants, grown from various tissue parts, can be trans-

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

Rubin, B. A.

Formation of the photosynthetic apparatus in various groups of plants in connection with the conditions of their existence. I. Synthesis of pigments in winter and summer wheat in dependence of conditions of illumination. B. A. Rubin and I. A. Chernavina. *Vestnik Moskov. Univ.* 10, No. 5, *Ser. Fiz. Mat. i Estestven. Nauk* No. 5, 101-7(1955).—Orange-red light is most satisfactory for synthesis of chlorophyll in both winter and summer wheat. However, in respect to red or blue light, the 2 forms of wheat show significant differences. The summer wheat is better adapted to blue light than is winter wheat. Plants grown in red light show approximately the same content of destroyed chlorophyll regardless of whether they were of winter or summer variety. Exposure to red light after initial growth in the red tends to cause more destruction of chlorophyll in the summer wheat; chlorophyll produced during preliminary growth in blue light appears to be somewhat more stable upon later exposure to red. Generally, respiratory gas metabolism in winter wheat is at a higher level than in summer wheat.

G. M. Kosolapoff

2

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B. A; YURIN, P.V.

Joint planting of winter and spring wheat in the spring. Vest.Mosk.un. No.9:65:79 S '55. (Wheat) (MLRA 9:1)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

Rubin, B. A.

Oxidation system and immunity of plants. B. A. Rubin, E. P. Chetverikova, and E. V. Artsikhovskaya. *Zhur. Obshchei Biol.* 16, 106-18(1955).—It is shown that the oxidation processes in plants have an important role in their fight against disease-causing microörganisms. However, not all oxidation enzymes are in this case of the same importance. Activation of mol. O in the cells of a healthy plant is caused, to a greater extent, by the action of oxidase which is, however, not immune against the toxic secretions of the parasites. In case of infection the basic role in the fight against infection goes to another oxidase which can activate itself under the action of toxic matters. 45 references.

F. J. Hendel

MD

(2)

Inst. Biochem. im. A. N. Bakh

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A.

The biochemistry of metabolism." N.M.Sisakian. Reviewed by B.A. Rubin. Usp.sovr.biol.40 no.1:125-128 Jl-Ag '55.(MLRA 8:10)
(METABOLISM) (SISAKIAN, N.M.)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B.A. (Moskva); OBRUCHEVA, N.V. (Moskva).

Physiology of mycotrophic nutrition in arborescent plants.
Usp.sovr.biol.40 no.2:192-210 S-O '55. (MLRA 9:2)
(PLANTS--NUTRITION) (MYCORHIZA)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

L'VOV,S.D.

Discussion of the texbook on the "Physiology of Plants" by Professor B.A.Rubin. Bot.zhur.40 no.4:599-602 Jl-Ag'55. (MLRA 8:11)
(Botany--Physiology) (Rubin, B.A.)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

HUBIN,B.A., professor

Unity of the organism and environmental conditions. Priroda 44 no.10:23-28 O'55. (MLRA 8:12)

(Botany--Physiology)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3"

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, B. A.

USSR/ Agriculture - Biochemistry

Card 1/1 Pub. 22 - 40/62

Authors : Rubin, B. A., and Sal'kova, Ye. G.

Title : Dehydrase of apple tissues

Periodical : Dok. AN SSSR 102/3, 571 - 573, May 21, 1955

Abstract : Various types of early and late crop apples were investigated to determine the dehydrogenating activity of apple tissues. Results obtained showed that the dehydrogenatic activity ratio of alcoholdehydrase, dehydrase, malic and succinic acids is not constant, it changes considerably during the development and ripening of the fruit. Five references: 4 USSR and 1 English (1937-1954). Tables; graphs.

Institution : Acad. of Sc., USSR, the A. N. Bakh Inst. of Biochem.

Presented by: Academician A. I. Oparin, February 10, 1955

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RUBIN, B.A.

Effect of light on activity of cytochrome oxidase. B. A. Rubin, I. A. Chernavina, and A. V. Mikheeva. *Doklady Akad. Nauk S.S.S.R.* 105, 1039–41(1955).—Young sprouts of winter and summer wheat grown 6 days in the dark were exposed 9 hrs. to blue and red light during which time the activity of cytochrome-oxidase was detd. spectrometrically (by abs. max. at 550 mμ). Exts. from etiolated leaves of the wheat were almost devoid of this enzyme in the dark; exposure to light caused a sharp increase in its content, with the red light being somewhat more effective at 6 hrs. exposure and blue light at 3 hrs. The effects were best shown by winter wheat. G. M. Kosolapoff

MD

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RUBIN, B.A.

METLITSKIY, L.V., doktor sel'skokhozyaystvennykh nauk; TSEKHOMSKAYA, V.M., kandidat sel'skokhozyaystvennykh nauk; RUBIN, B.A., professor, spetsredaktor; PRITYKINA, L.A. redaktor; GOTLIB, E.M., tekhicheskiy redaktor.

[Picking and storing apples] Uborka i khranenie iablok, Moskva, Pishchepromizdat, 1956. 125 p. (MLRA 10:6)
(Apple)

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"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R001445810014-3

RUBIN, Boris Anisimovich, professor; OPARIN, A.I., akademik, redaktor; POTAPOV, N.G., redaktor; IMSHENNIK, I., tekhnicheskiy redaktor

[Plant physiology] Fiziologiia rastenii. Pod red. A.I. Oparina. Moskva, Gos. izd-vo "Sovetskaia nauka" Pt. 2. 1956. (MLRA 10:4)
287 p.
(Botany--Physiology)

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Rubin B.A

BENEDIKTOV, I.A., redaktor; GRITSENKO, A.V., redaktor; IL'IN, M.A., zamestitel' glavnogo redaktora, LAPTEV, I.D., LISKUN, Ye.F.; LOBANOV, P.P., glavnyy redaktor; LYSENKO, T.D.; SKRYABIN, K.I.; STOLETOV, V.N.; PAVLOV, G.I., kandidat sel'skokhozyaystvennykh nauk, nauchnyy redaktor; SOKOLOV, N.S., professor, nauchnyy redaktor; ANTIPOV-KARATAYEV, I.N., doktor sel'skokhozyaystvennykh nauk, nauchnyy redaktor; KARPINSKIY, N.P., kandidat sel'skokhozyaystvennykh nauk, nauchnyy redaktor; SHESTAKOV, A.G., doktor sel'skokhozyaystvennykh nauk, professor, nauchnyy redaktor; RUBIN, B.A., doktor sel'skokhozyaystvennykh nauk, nauchnyy redaktor; KOMARNITSKIY, N.A., dotsent, nauchnyy redaktor; LYSENKO, T.D., akademik, nauchnyy redaktor; POLYAKOV, I.M., professor, nauchnyy redaktor; SHCHEGOLEV, V.N., doktor sel'skokhozyaystvennykh nauk, professor, nauchnyy redaktor; YAKUSHKIN, I.V., akademik, nauchnyy redaktor; LARIN, I.V., professor, doktor biologicheskikh nauk, nauchnyy redaktor; SMELOV, S.P., professor, doktor biologicheskiy nauk, nauchnyy redaktor; EDEL'SHTEYN, V.I., professor, doktor sel'skokhozyaystvennykh nauk, nauchnyy redaktor; SHCHERBACHEV, D.M., professor, doktor meditsinskikh nauk, nauchnyy redaktor; OGOLEVETS, G.S., kandidat sel'skokhozyaystvennykh nauk, nauchnyy redaktor; YAKOVLEV, P.N., akademik, naychnyy redaktor; YEKIMOV, V.P., agronom, nauchnyy redaktor [deceased], EYTINGEN, G.P., professor, doktor sel'skokhozyaystvennykh nauk, nauchnyy redaktor; TIMOFEYEV, N.N., professor, nauchnyy redaktor; TUROV, S.I., professor, doktor biologicheskikh nauk; YUDIN, V.M., akademik, nauchnyy redaktor; LISKUN, Ye.F., akademik, nauchnyy redaktor; VITT, V.O., professor, doktor sel'skokhozyaystvennykh nauk, nauchnyy redaktor; KALININ, V.I., kandidat sel'skokhozyaystvennykh nauk, nauchnyy redaktor

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BENEDIKTOV, I.A.--- (continued) Card 2.
GREBEN', L.K., akademik, nauchnyy redaktor; NIKOLAYEV, A.I., professor, doktor sel'skokhozyaystvennykh nauk, nauchnyy redaktor; RED'KIN, A.P., professor, doktor sel'skokhozyaystvennykh nauk, nauchnyy redaktor; SMETNEV, S.I., professor, doktor sel'skokhozyaystvennykh nauk, nauchnyy redaktor; POPOV, I.S., professor, doktor sel'skokhozyaystvennykh nauk, nauchnyy redaktor; MANTEYFEL', P.A., professor nauchnyy redaktor; INIKHOV, G.S., professor, doktor khimicheskikh nauk, nauchnyy redaktor; ANFIMOV, A.N., professor, nauchnyy redaktor; GUBIN, A.F., professor, doktor sel'skokhozyaystvennykh nauk, nauchnyy redaktor; POLTEV, V.I., professor, doktor veterinarnykh nauk, nauchnyy redaktor; LINDE, V.V., professor, doktor tekhnicheskikh nauk, nauchnyy redaktor; CHERGAS, B.I., professor, doktor biologicheskikh nauk, nauchnyy redaktor; NIKOL'SKIY, G.V., professor, nauchnyy redaktor; AVTOKRATOV, D.M., professor, doktor veterinarnykh nauk, nauchnyy redaktor; IVANOV, S.V., professor, doktor biologicheskikh nauk, nauchnyy redaktor; VIKTOROV, K.P., professor, doktor veterinarnykh nauk, nauchnyy redaktor; KOLYAKOV, Ya.Ye., professor, doktor veterinarnykh nauk, nauchnyy redaktor; ANTIPIN, D.N., professor, doktor veterinarnykh nauk, nauchnyy redaktpr; MARKOV, A.A., professor, doktor veterinarnykh nauk, nauchnyy redaktor; DOMRACHEV, G.V., professor, doktor veterinarnykh nauk, nauchnyy redaktor; OLIVKOV, B.M., professor, doktor veterinarnykh nauk nauchnyy redaktor [deceased]; FLEGMATOV, N.A., professor, doktor veterinarnykh nauk, nauchnyy redaktor; BOLTINSKIY, V.N., professor, doktor tekhnicheskikh nauk, nauchnyy redaktor; VIL'YAMS, Vl.P., professor, doktor tekhnicheskikh nauk, nauchnyy redaktor; KRASNOV, V.S., kandidat tekhnicheskikh nauk, nauchnyy redaktor;

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BENEDIKTOV, I.A.---(continued) Card 3.

YEVREINOV, M.G., akademik, nauchnyy redaktor; SAZONOV, N.A., doktor tekhnicheskikh nauk, nauchnyy redaktor; NIKANDROV, B.I., inzhener, nauchnyy redaktor; KOSTYAKOV, A.N., akademik, nauchnyy redaktor; CHERKASOV, A.A., professor, doktor tekhnicheskikh nauk, nauchnyy redaktor; DAVITAYA, F.F., doktor sel'skokhozyaystvennykh nauk, nauchnyy redaktor; IVANOV, N.N., professor, doktor tekhnicheskikh nauk, nauchnyy redaktor; ORLOV, P.M., professor, doktor tekhnicheskikh nauk, nauchnyy redaktor, LOZA, G.M., kandidat ekonomicheskikh nauk, nauchnyy redaktor; CHERNOV, A.V., kontrol'nyy redaktor; ZAVARSKIY, A.I., redaktor; ROSSOSHANSKAYA, V.A., redaktor; FILATOVA, N.I., redaktor; YEMEL'YANOVA, N.I., redaktor; SILIN, V.S., redaktor BRANZBURG, A.Yu., redaktor; MAGNITSKIY, A.V., redaktor terminov; KUDRYAVTSEVA, A.G., redaktor terminov; AKSENOVA, A.P., mladshiy redaktor; MALYAVSKAYA, O.A., mladshiy redaktor; FEDOTOVA, A.F., tekhnicheskiy redaktor

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