KOLAKOVSKIY, G. Kh.

Mbr., Chernovitskiy State University, Chernovitsy, (-1947-)

Changes in the Nature of the Potato Brought About by Transplanting," Dok. Ak., 58, No. 8, 1947

KOLOTKOVSKIY, G. KH.

30409

O narushyenii korryelyatsionnykh svyazey vyezdy glazkami klubnyey kartofyelya. Trudy In-ta fiziologii rastyeniy im. Timiryazyeva, T. VI, vyp. 2, 1949, s. 162-70

SO: LETOPIS' No. 34

MOLOTKOVSKIY, G. KH.

28309

Znachyeniye anaktivatorov rosta dlya sostoyaniya lokoya u rastyeniy.
Doklady akad . nauk SSSR, Novaya syeriya T. LXVIII, No. 2, 1949 S. 405-08-
Bibliogr: 12 Nazv.

SO. LETOPIS NO. 34

USSR/Biology - Growth Stimulants 1 Nov 49
Plants, Woody

"Action of Certain Growth Stimulants in a Mixture of Nigrol and Ash Upon the Healing of Wounds in Woody Species," G. Kh. Molotokovskiy, S. I. Pasjkar', Chernovits State U, 3½ pp

"Dok Ak Nauk SSSR" Vol LXIX, No 1

Reached three conclusions from two series of experiments: (1) Properly selected concentration of alpha-indolyl acetic acid stimulates healing process. (2) Nigrol lubricant in various combinations with ash, 2,4-dichlorophenoxy acetic acid, and alphanephthyl

156T13

USSR/Biology - Growth Stimulants (Contd) 1 Nov 49

acetic acid is effective, for trees and fruit trees. (3) Success in healing is closely connected with time of wound and peculiarities and age of specimen. Submitted by Acad N. A. Maksimov 3 Sep 49.

156T13

MOLOTOKOVSKIY, G. KH.

CA

11H

Activation of lipase by some growth stimulants. G. Kh. Molotkovskii and N. I. Volotovskaya. *Doklady Akad. Nauk S.S.S.R.* 70, 117-19 (1950).—α-Indolylacetic acid (I), β-naphthylbutyric acid (II), and 2,4-dichlorophenoxyacetic acid (III) were tested with the lipase of castor oil seeds. All acids were tested at 0.01 *N* concn. by infiltration for 30 min. at 37° or without infiltration by using 2- or 12-hr. contact periods. All acids caused stimulation of the enzyme, but most effective were I and III. Combination of I and III is poorly effective, however. The growth stimulating substances may act by activation of lipase, which cleave fatty acids from the lecithins of the plasmatic membranes, causing changes of microstructure and increased wall permeability to various nutrients. G. M. Kosolapoff

USSR/Biology - Growth Stimulators Jan 50
Lipase

15577 "Activation of Lipase by Certain Growth Stimulators," G. Kh. Molotkovskiy, M. I. Volotovskaya, Chernovitsy State U, 3 pp

"Dok Ak Nauk SSSR" Vol LXX, No 1

Growth stimulators have been found to cause anatomico-morphological, physiological, and biochemical changes. Little information is available on biochemical processes connected with dynamic fermentative apparatus of plant. Determined that activated lipase isolates aliphatic acid from lecitines which make up plasmatic

15577

USSR/Biology - Growth Stimulators (Cont'd) Jan 50

membrane. Latter, as a result, is characterized by change in microstructure with greater permeability for various nutrient matter. Submitted by Acad N. A. Maksimov 9 Nov 49.

15577

MOLTKOVSKIY, G. Kh.

USSR/Biology - Rye
Ferti lizers

11 May 50

"Effect of Some Environmental Conditions on the Forma-tion of the Ear of Branch-Eared Rye," G. Kh. Molotkov-skiy, Yu. G. Molotkovskiy, Chernovitsy State U, 3½ pp

"Dok Ak Nauk SSSR" Vol LXXII, No 2

Describes results of test conducted in 1948 on effe of different doses of mineral fertilizer, vernaliza-tion, and transplantation on degree of branching of rye plant ears. Tabulates effect of single, double, and triple doses of nitrogen-phosphorus-potassium fertilizer mixture and same mixture and doses with-out nitrogen on structure and yield of subject ears.

160T

[redacted]

USSR/Biology - Rye (Contd) 11 May

All tests showed improvement over control plants but double dose NPK mixture showed the most. Submitted 20 Mar 50.

160T6

MOLOTKOVSKIY, G. Kh. [redacted]

MOLOTKOVSKIY, G. Kh.

"On Changing Winter Branching Rye into Perennial Rye by Cultural Methods," Dokl. AN SSSR, 72, pp 591-93, 1950

Translation U-3403, 30 Apr 53

MOLOTKOVS'KYY, H. Kh., zav.kafedroyu fiziolohiyi roslyn.

Five years of scientific-research work of the Department of Plant Physiology of the Chernovtsy State University. Bot.zhur.[Ukr.] 8 no.]:93-95 '51. (MLRA 6:9)

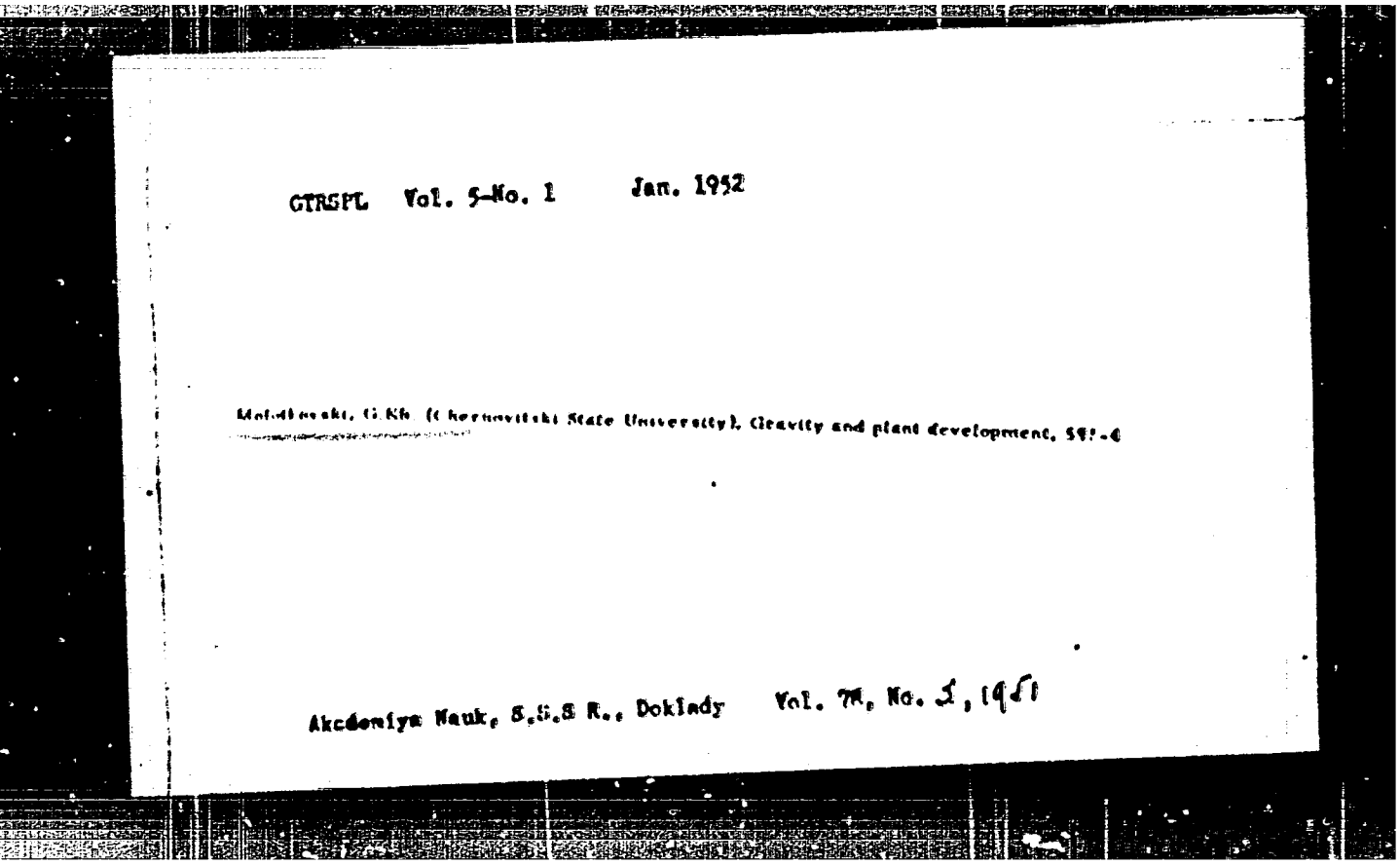
(Chernovtsy Univeriaty--Botany--Physiology) (Physiology--Botany--Chernovtsy University)

MOLOTKOVSKIY, G. Kh.

Beech

Change in the form of leaves of a beech tree. Biul. Glav. bot. sada, No. 10, 1951.

Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified.



GTRSPL Vol. 5-No. 1 Jan. 1952

[illegible] (Kharkovskii State University), Gravity and plant development, 59:-4

Akademiya Nauk, S.S.S.R., Doklady Vol. 78, No. 5, 1951

OTRSPL Vol. 5-No. 2 Jan. 1952

Molotkovskii, G.Kh. (Chernovitz State University). The growth and development of Perilla nankinensis and Hibiscus cannabinus. 745-8

Akademiya Nauk, S.S.S.R., Doklady Vol. 78, No. 4, 1951

CA

11-F

Appearance of polarity and distribution of ascorbic acid in Asclepias cornuti. G. Kh. Molotkovskiĭ and Yu. G. Molotkovskiĭ (Chernovtsi State Univ.). *Doklady Akad. Nauk S.S.S.R.*, 82, 1005-8(1952).—Expts. with 8-year-old plants showed that the leaves contain more ascorbic acid per given wt. than the stems (factor of 3–4), and the nodes carry somewhat more than the internodes. The vitamin content increases toward the upper parts of the plant. Indications are that the apical part of internode carries more ascorbic acid than the lower part, thus causing zigzag jumps in the concn. as one proceeds up the plant. This suggests the possibility of the theory of cyclic aging and rejuvenation in the organism. G. M. Kosolapoff

MOLOTKOVSKIY, G.Kh.

Polarization effect and distribution of chlorophyll in segments of some plants. G. Kh. Molotkovskii and D. V. Sholudyanska (State Univ., Chernovitsy). *Dopovidi Akad. Nauk Ukr. S.S.R.* 1953, 417-19 (Russian summary); cf. *C.A.* 48, 4058g.—Polarity in plants was studied by investigation of the distribution of chlorophyll (I) in the metameres of plants. The concn. of I was larger at the base and smaller at the top of each internode, hence each new node makes a jump in I concn. Oats, rye, dahlia, *Helianthus tuberosus*, hops, fuller's teasel, nettle, balsam, [illegible], perill, rhubarb, elder, fig, and maple were studied. [illegible] structural units, like cells, are also polar and not equal from the evolutional point of view, differ in quality and quantity in opposing polar parts. Hence, each metamere is considered a polar system. Michael Demsky

AD

(1)

MOLOTKOVS'KYY, M.Kh.

Scientific activity of the Department of Plant Physiology of the Chernovtsy State University, 1951-1952. Bot.zhur.[Ukr.] 10 no.3:103-105 '53.
(MLRA 6:8)

(Chernovtsy University--Botany--Physiology) (Physiology--Botany--Chernovtsy University)

1. KOLOTKOVSKIY, G. KH.; KOLOTKOVSKIY, YU. G.

2. USSR (600)

4. Trees

7. New method of interrupting the rest period of tree plants, Dokl. AN SSSR, 89, No. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April, 1953, Uncl.

MOLOTKOVSKIY, G.Kh.; MOLOTKOVSKIY, Yu.G.; SUKACHEV, V.N., akademik.

Polarity and the concentration of hydrogen ions in metamers of some plants. Dokl. AN SSSR 90 no.6:1171-1173 Je '53. (MLRA 6:6)

1. Chernovitskiy gosudarstvennyy universitet. 2. Akademiya nauk SSSR (for Sukachev). (Botany--Physiology)

MOLOTKOVSKIY, G. Kh.

(3)

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
Biological Chemistry

• **Effect of wetting of corn seeds in warm water on its growth and yield.** G. Kh. Molotkovskii and B. G. Gluskina (Botan Garden, State Univ., Chernovitsi). *Doklady Akad. Nauk S.S.S.R.* 92, 679-80(1953).—Wetting corn seed in water that had been preheated to 30-60° for 5-6 hrs. not only improves the rate of growth of the plants but also improves the final yield of corn. Differences of 10% or more were observed on small field trials. Various strains require a temp. of 50-60° for best results. The treated seeds produce plants with higher [illegible] normal chlorophyll content and enhanced content of ascorbic acid and catalase.
G. M. Kosolapoff

MOLOTKOVSKIY, G.Kh.

Chemical Abst.
Vol. 48
April 10, 1954,
Biological Chemistry

Concentration of cellular juice, water content, and dry matter in internodes of some plants in connection with the polarity phenomenon. G. Kh. Molotkovskii and E. M. Volkovskaya. *Doklady Akad. Nauk S.S.S.R.* 92, 1081–3(1953); cf. *Ibid* 82, No. 6(1952); *C.A.* 46, 8201c.—In the following study the concn. of cellular juice was detd. by mech. expression of plant tissue and deta. of n of the exudate. H_2O content was detd. by drying to 105°. Detns. made on internodes of *Dahlia variabilis*, *Silphium laciniatum*, *Canna indica*, *Bocconia cordata*, *Polygonum sachalinense*, and *Zea mays* show the following: Water content in the lower regions of the plant stems is greater than in upper ones, with the exception of *Ricinus communis*. The base of each internode has higher H_2O content than the top portion. The distribution of dry matter is reverse to that of H_2O, again with exception of *Ricinus*. Concn. of cellular juice rises as one ascends the plant stem. In *Bocconia* during vegetation period (early stage) no differences in concn. of cellular juice was observed at the borders of the various internodes; this lack of differentiation ceased at the late flowering stage. The variations of H_2O and dry-matter content comprise a partial explanation for the phenomenon of changing polarity of various plant parts. The cellular juice concn., H_2O, and dry-matter content show a [illegible], saw-tooth plot against the vertical distance up the [illegible].

G. M. Kondapoff

MOLOTKOVSKIY, O.Kh.; MOLOTKOVSKIY, Yu.G.; SLOBODYANSKAYA, D.V.

Relation of the polarity of metamers of cereals to the activity of oxidising enzymes and to the vitamin C content. Bot.zhur.[Ukr.] 11 no.1:67-72 '54. (MLRA 8:7)

1. Chernivets'kiy derzhavniy universitet, kafedra fiziologii roslin.
(Ascorbic acid) (Grain) (Enzymes)

KONDRATIUK, Ye.M.; MOLOTKOVS'KIY, G.Kh.

Occurrence of polarity disturbance in a spruce. Bot.zhur.[Ukr.] 11 no.1:101-105 '54. (MLRA 8:7)

1. Institut botaniki AN URSR, viddil vishchikh roslin. Chernivets'kiy derzhavniy universitet, kafedra fiziologii roslin. (Spruce) (Polarity (Biology))

MOLOTKOVSKIY, G.Kh.; BUBYRENYA, V.T.

Physiology of potato plants with trimmed tops. Bot.zhur.[Ukr.] 11 no.2:78-85 '54. (MLRA 8:7)

1. Chernivets'kiy derzhavniy universitet, kafedra fiziologii roslin.
(Potatoes)

MOLOTKOVSKIY, G.Kh.

The phenomenon of polarity and the development of plants. Bot.zhur.[Ukr.] 11 no.3:3-15 '54. (MLRA 8:7)

1. Chernivets'kiy derzhavniy universitet, kafedra fiziologii roslin.
(Polarity (Biology)) (Growth (Plants))

MOLOTKOVSKIY, G.KH.

MOLOTKOVSKIY, G.Kh.

[redacted]

Formation of additional shoots on roots of the black nightshade under conditions of disturbed polarity. Biul.Glav.bot. sada no.18: 95-97 '54. (MLRA 8:3)

1. Botanicheskiy sad Chernovitskogo gosudarstvennogo universiteta. (Nightshade)

MOLOTKOVSKIY, G.Kh.

Induced metameric segments in potato tubers and the physiological nature of their polarity. Fiziol.rast. 2 no.1:70-74 Ja-F '55. (MIRA 8:9)

1. Chernovitskiy gosudarstvennyy universitet, USSR.
(Potatoes) (Polarity (Biology))

MOLOTKOVS'KIY, O.Kh.; LOPUSHANSKIY, P.I.; GOLUBIYEV, V.O.

Relation of polarity to the dynamics of formation and the distribution of ascorbic acid in the walnut. Bot.zhur. [Ukr.] 12 no.4:3-12 '55. (MLRA 9:1)

(Walnut) (Ascorbic acid)

MOLOTOVSKIY, G. Kh.

USSR/Agriculture - Plant physiology

Card 1/1 Pub. 22 - 40/47

Authors : Lopushanskiy, P. I., and Molotovskiy, G. Kh.

Title : Respiration of metameric formations of walnut and the polarity phenomena

Periodical : Dok. AN SSSR 100/6, 1179-1182, Feb 21, 1955

Abstract : Investigation was conducted to determine the respiration intensity of a walnut (Juglans regia L) during various periods of leaf vegetation. Results obtained are described. Nine USSR references (1937-1953). Tables.

Institution : State University, Chernovtsy

Presented by: Academician A. L. Kursanov, December 22, 1954

Molotovskiy, G. Kh.

USSR/ Biology - Plant physiology

Card 1/1 Pub. 22 - 58/62

Author : Molotovskiy, G. Kh.

Title : The germination and sprouting energy of oak and walnut seeds depending upon their position in the soil

Periodical : Dok. AN SSSR 102/3, 637 - 639, May 21, 1955

Abstract : Results obtained from studying the germination and sprouting energies of oak and walnut seeds are described. Two USSR references (1951 and 1953). Tables.

Institution : .....

Presented by: Academician A. L. Kursanov, February 14, 1954

MOLOTKOVSKIY, G.Kh.

62

Appearance of polarity and distribution of ascorbic acid in the walnut plant. P. I. Lopushanskii and G. Kh. Molotkovskii (State Univ., Chernovtsy). *Doklady Akad. Nauk S.S.S.R.* 103, 723-5(1955); cf. *C.A.* 49, 10449b.—In young plants vitamin C distribution shows a rise from the bottom of the plant to the top; in older, lower shoots the vitamin C content rises toward the beginning of the main stem. In the roots vitamin C declines on approach to the top of the root. Over 9000 mg. % is found at the neck of the root. [illegible]

(1)

MOLOTKOVSKIY, G.Kh.

MD

Distribution of ascorbic acid in the axial organs of normally and horizontally growing plants of Asclepias cornuti and walnut. G. Kh. Molotkovskii and Yu. G. Molotkovskii (State Univ., Cherpovitsy). *Doklady Akad. Nauk S.S.S.R.* 103, 921-4(1955); cf. *C.A.* 48, 4058g.—The axial polarity of distribution of ascorbic acid in artificially horizontally growing stem of *A. cornuti* is the same as that found in the vertically growing normal plant; the same is true of walnut. A difference is found in the transverse distribution, in that higher contents of ascorbic acid are found in the upper portion of such a stem than in the lower portion in transverse section.

G. M. Kessler

(1)

I.

USSR/Plant Physiology - Respiration and Metabolism.

Abs Jour : Ref Zhur - Biol., No 20, 1958, 104325

Author : Iblokhovskiy, T.G. Kh-

Inst : Chernovitsy University.

Title : The Polarity, Correlation and Translocation of Substances in Plant Organisms.

Orig Pub : Nauchn. Yezhegodnik, Chernovitsk. Un-t, 1, No 2, 33-47, 1956 (1957).

Abstract : A survey of data attesting to the polar distribution of organic and mineral substances in individual cells, meta-meres, organs and entire plants, as created by various metabolizing-adsorbing capacities of the protoplasm of the opposite zones of the above-named structures. Substances, compounds and ions are divided by the author into two groups: homopolar, concentrating in one of the zones ..

Card 1/2

MOLOTKOVSKIY, G.Kh.

Coefficients of polarity and graduation of the coefficient of formation and distribution of substances in plants [with English summary in insert]. Fiziol.rast. 3 no.3:243-251 My-Je '56. (MLRA 9:9)

1.Chernovitskiy gosudarstvennyy universitet, Chernovitsy.
(Polarity (Biology)) (Botany--Physiology)

MOLOTKOVS'KIY, G.Kh.; LOPUSHANS'KIY, P.I.; SOLDATOVA, M.A.

Growth dynamics of fruit and the formation of vitamin C and oil in walnut fruit and leaves in connection with polarity. Ukr.bot.zhur. 13 no.1:56-62 '56. (MLRA 9:9)

1.Chernivets'kiy derzhavniy universitet, Kafedra fiziologii roslin.
(Walnut)

Molotkovskiy, G. Kh.

USSR/Plant Physiology Respiration and Metabolism H-2

Abs Jour : Referat. Zh - Biol., No 6, 25 March 1957, 22329

Author : Molotkovskiy, G. Kh., Grigorutsa, G. V.
Inst : Not given
Title : Oxidation - reduction processes in plant reproductive organs in relation to appearance of polarity.

Orig Pub : Zh. obshch. biologiy, 1956, 17, No 3, 212-217

Abstract : The intensity of respiration, peroxidase and catalase activity, the level of pH, rH and ascorbic acid content was determined in flowers and fruit of the tulip tree, pear tree, apple tree, plum, sour cherry, white and yellow lillies, tulip and poppy. The ascorbic acid content, enzyme activity and respiration intensity gradually changed from the highest value to the lowest in the calyx and corolla, similar to that observed in leaves. In distributing these substances and enzymes in stamens and pistils the same gradual progression was observed as had been established for the stalk (Molotovsky, Botan, J. Acad. Sci. Ukr.SSR 1954, 11, No 3). In the author's opinion, this is convincing proof in favor of the concept of Plantefol and Krechetovich, according to whom the calyx and corolla are

Card 1/2 -3-

MOLOTKOVS'KIY, G. KH.

I-1

USSR/Physiology of Plants. General Problems.

Abs Jour: Ref. Zhur-Biologiya, No 1, 1958, 1102.

Authors : Lopushanskiy, P.I., Molotkovs'kiy, G. Kh.
Inst : Chernovtsy University
Title : Materials on the Physiology of the Walnut.

Orig Pub: Nauk zap. Chernivets'k. un-t, 1956, 23. 17-93.

Abstract: The shortness of the day has permitted a quickening of the processes of preparing the walnut seedling for wintering. A direct relationship has been discovered between the ascorbic acid content and the plant's resistance to winter. The black walnut, the most resistant under Chernovtsy conditions, is characterized by the highest content of this acid. Emphasized is the presence of a correlational connection between the formation of fruits in the spring and summer flowerings. It is supposed that the formation of fruits can be assisted

-1-

Card : 1/2

MOLOTKOVSKIY, G.KH

USSR/Plant Physiology - Respiration and Metabolism. I-2

Abs Jour : Ref Zhur - Biol., No 5, 1958, 19926

Author : Molotkovskii, G.Kh.
Inst : -
Title : Unity and Polarity of the Plant Organism.

Orig Pub : Nauk. zap. Chernivetsk. un-t, 1956, 23, 94-101

Abstract : On the basis of previously published works the author surveyed the scheme of polarity in the formation and accumulation of various combinations and the intensity of metabolism in opposit parts of the plant. Organs metamexes and cells as structural elements of polarity are distributed in the plant in a definite order.
The content of active substances in the plant decrease and the inert substances increase (cellulose, lignin etc.) the further the distance of these substances from the upper poles of the shoot and the root, and the nearer they are to the root neck. In young plants the upper

Card 1/2

9

MOLOTKOVSKIY, G. KH.

USSR/Plant Physiology - Growth and Development. I-5

Abs Jour : Ref Zhur - Biol., No 5, 1958, 19993

Author : Molotkovskii, G.Kh.
Inst :
Title : The Nature of Changes in Beet Roots when Grown in a Reverse Position to the Horizon.

Orig Pub : Nauk. zap. Chernivetsk. un-t, 1956, 23, 3-16.

Abstract : The tip of the root of the sugar or table beet was buried in the soil, while the rest of it remained outside. In 2 to 6 months the reversed roots developed formations in the form of "veins", "warts" and excrescences, which in their potward form and interior structure differed from the excrescences on roots in normal position. The author explained the development of formations in the reversed roots by the movement of nutritious substances in the opposite direction, that is from the head to the tail. When the tip of the root was removed the

Card 1/2

MOLOTKOVSKIY, G.Kh.

Phenomenon of polarity and dynamics of fat accumulation and vitamin C in the upper part of walnut. P. I. Lepu-
shanskii and G. Kh. Molotkovskii. *Byull. Moskov. Obshchestva Ispytatel. Prirody, Otdel. Biol.* 61, No. 1, 81-7
(1956).—Vitamin C is most plentiful in the middle of the nut and in the green nut covering; the content declines with ripening. Fat accumulation begins only after the nuts acquire their final size and continues through the ripening period. As fat accumulates, ascorbic acid declines. The inner parts of the plant foliage gave the lowest content of ascorbic acid, the highest content being found in those parts facing north. In early spring the nut coverings contain more ascorbic acid in specimens near the bottom of the plant, while in mid summer the upper nuts are richest. Leaves contain less vitamin C than the nut coverings, but the general trend of its distribution parallels the one found above in the nuts. G. M. Kosolapoff

COUNTRY	:	USSR
CATEGORY	:	Plant Physiology. Water Regimen. I
ABS. JOUR.	:	RZhBiol., No. 6 1959, No. 24564
AUTHOR	:	Lopushanskiy, P.I.; Kolotkovskiy, G. Kh.
INST.	:	Academy of Sciences, USSR
TITLE	:	The Content of Water and Dry Material in Metameres of Walnut In Connection With the Phenomenon of Polarity
ORIG. PUB.	:	V sb.: Pamyati akad. N.A. Maksimova, 1957, 145-150
ABSTRACT	:	Water content in the stem and root of seedlings and mature trees and in young shoots of Juglans regia increases from the base to the top. In leaves along the crest of a tree or of young shoots, water content drops from the base to the top. From internode to internode, water content increases intermittently. The work was carried out at the Chernovitskiy Institute. Bibliography of 14 titles. P. I. Lopushanskiy.

CARD: 1/1

Molotkovs'kiy, G. KH.

I.

USSR/Plant Physiology - General Problems

Abs Jour : Ref Zhur - Biol., No 18, 1958, 81967

Author : Molotkovs'kiy, G.Kh., Kotelevets', O.S.

Inst : Czernowitz University.

Title : The Connection Between the Phenomenon of Polarity and the Content of Chlorophyll, Dry Substance and Water in Some Coniferous Plants

Orig Pub : Dopovidi AN UkrSSR, 1957, No 3, 310-312

Abstract : In order to verify the presence of the phenomenon of polarity in conifers, the authors studied the chlorophyll content as well as the amount of dry substance and water in the coniferous needles, disposed at the opposite end of internodes on pine, spruce and fir trees. The needles of the lower part of the internode contained more chlorophyll and dry substance and less water than the needles

Card 1/2

I

Country : USSR
Category: Plant Physiology. General Problems.

Abs Jour: RZhBiol., No 14, 1958, No 62936

Author : Molotkovs'kiy, G.Kh.
Inst :
Title : Polarity and its Indexes in Plants

Orig Pub: Ukr. botanichnyy zh., 1957, 14, No 1, 3-11.

Abstract: This is a review of experiments accomplished mostly by the author and his collaborators. They show the existence of differences between the poles of the cell, among individual tissues, as well as among metameric formations and organs, with regard to their physicochemical, biochemical, structural and physiologico-biological indexes.

Card : 1/2

MOLOTKOVS'KIY, G.Kh.; BOBIR, N.U.

Phenomenon of polarity and distribution of ascorbic acid in fir, spruce, and pine trees [with summary in English]. Ukr.biokhim. zhur. 29 no.1:119-123 '57. (MLRA 10:5)

1. Chernivets'kiy derzhavniy universitet.
(POLARITY (BIOLOGY)) (ASCORBIC ACID) (CONIFERAE)

MOLOTKOVSKIY, G. Kh.

AUTHOR MOLOTKOVSKIY G.Kh., IZMAILOV A.F. 20-5-62/67

TITLE Chlorophyll and Ascorbic Acid Content and Catalase Activity in the Leaves of Certain Weeping Forms of Arboreous Plants in Connection with the Polarity Phenomenon.
(Soderzhaniye khlorofilla, askoroinovoy kisloty i aktivnost' katalazy v list'yakh nekotorykh plakuchikh form drevesnykh rasteniy v svyazi s yavleniyem polyarnosti -Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 5, pp 1165-1167 (U.S.S.R.)

Received 7/1957 Reveiwed 8/1957

ABSTRACT When studying the influence exercised by gravity on the polarization of plants the authors cultivated them in an upside-down position. They were able to observe interesting changes of morphological polarity. Their aim was to explain the type of metabolism in the branches of the hanging forms, i.e. of woody plants with a naturally disturbed polarity of the aerial parts. For this purpose the concentrations of the substances mentioned above were determined at three different levels, i.e. at the base, in the middle and at the top of branches; this was done in both the hanging and the normal forms of the following plant species: ash-tree, willow, Sophora japonica, Forsytnia and Caragana. When analyzing the chlorophyll concentrations found (tabl.1) it can be seen that they rise towards the top of the branches. The chlorophyll content is lower in young leaves. In the hanging varieties of plants the chlorophyll contents is lower than in normal ones. Furthermore a considerable difference was observed between different plant species. Quite similar conditions were in the case of the ascorbic acid

Card 1/2

Chlorophyll and Ascorbic Acid Content and Catalase Activity in the Leaves of Certain Weeping Forms of Arboreous Plants in Connection With the Polarity Phenomenon.

(tabl.2), its polar distribution is also clearly pronounced. The same holds true for the catalase with highest concentrations found in both varieties of Caragana. The activity of catalase is strongest in young leaves of all plants examined and diminishes in the hanging forms just like the other substances studied apparently the differences observed by the authors are not directly correlated with the physiological processes responsible for their different reaction in regard to gravity and other milieu factors. For the highest concentration of chlorophyll and of ascorbic acid as well as the strongest activity of catalase were always found in the tops of branches, thus polarizing these organs. This is the case in spite of the fact that the branches, in opposite directions, i.e. upwards and downwards in erect and hanging forms respectively.
(3 tables, 14 Slavic references).

ASSOCIATION State University of Chernovitsy
PRESENTED BY KURSANOV A.N., Member of the Academy
SUBMITTED 4.7.1957
AVAILABLE Library of Congress
Card 2/2

20-2-57/60

AUTHOR: Molotkovskiy, G. Kh.

TITLE: The Phenomenon of Polarity and Sex Displacement in Corn (Yavleniye polyarnosti i smeshcheniye pola u kukuruzy)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 2, pp.434-437 (USSR)

ABSTRACT: As result of the investigations by Joyet-Lavergne, based upon Ye. O. Kanoylov's discovery, the siginficance of the value of the oxidizing-reducing potential for the formation of the sex of plants was recognized. Displacement of the biochemical processes in the direction of the oxidation brings about a male sexualization, whereas displacement in the direction of the reduction causes a female sexualization. In the relevant scientific literature indications can be found that the qualities of the factors causing such displacements differ. The author of the paper under review made the attempt to displace the sex in corn by cutting off the root in the initial phase of seed germination. At the same time, the seeds were moistened with solutions of 2,4-di-

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chlorophenoxy-acetic acid and partly of heteroauxin, this in order to stimulate their growth. According to Table Nr 1 of the present paper, all experimental plants were retarded in their growth as compared with the control plants; the only exception were those plants the roots of which had been cut for a period of ten days. The investigations led to the conclusion that there exists a polarly opposed distribution of catalase and peroxydase, namely: the activity of the catalase increases, step by step, along the stem of the plant from the base to the top; the activity of the peroxydase increases the other way around, from the top to the base. As result, the activity of one of the oxidizing ferments - of the catalase - is highest at the pole of the stem where the tissues are oldest from the point of view of their stage, but youngest from the point of view of their age. The opposite is true of the peroxydase. Thus there exists somewhere in the middle of the stem the most favorable combination both of the oxidizing-reducing processes, and also of the stage-age state. This is also the cause of the formation of the best cobs at this place. Consequently a certain age-stage state for each concrete case favors in corn the development

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of the female characteristics. The same must be true of the development of the male characteristics in corn and in other plants. It appears that extreme markedness of the oxidizing capacities and of the stageness of the development at the upper pole of the stem favor the development of male flowers at that place. The author of the present paper obtained confirmation of these conclusions by investigating inflorescences of walnut at the second blossoming. Therefore it can be said that the development of flowers of the one or the other sex in maiz takes place on basis of the interaction of polarly opposed exchange reactions which determine the sexualization of the tissues and which are displaced in dependence on the conditions of their respective environments. But also a perturbation of the transverse polarity in corn was obtained; this perturbation expressed itself in the development of leaves that were placed in opposition with each other. This the stimulants of growth probably are able to exert direct influence upon the protein molecule. Consequently it is possible, through the influence of the

MOLOTKOVSKIY, G.Kh.; SOLDATOVA, M.A.

Polar formation and distribution of vitamin C and other reducing substances in Persian walnut plants. Nauch.dokl.vys.shkoly; biol.nauki no.3:154-159 '58. (MIRA 11:12)

1. Predstavlena kafedroy fiziologii rasteniy Chernovitskogo gosudarstvennogo universiteta.
(Ascorbic acid) (Walnut) (Polarity (Biology))

MOLOTKOVSKIY, G.Kh.; ZAMANSKIY, L.N.; LOPUSHANSKIY, P.I.; LOPUSHANSKIY, A.I.

Distribution of radioactive phosphorus (P^{32}) in some plants as related to the phenomenon of polarity [with summary in English]. Fiziol. rast. 5 no.1:37-41 Ja-F '58. (MIRA 11:1)

1. Chernovitskiy gosudarstvennyy universitet.
(Phosphorus--Isotopes) (Polarity (Biology)) (Minerals in plants)

MOLOTKOVSKIY, G.Kh. [Molotkovs'kyi, H.Kh.]

Polarity types in the formation and distribution of substances in plants [with summary in English]. Ukr. bot. zhur. 15 no.2:3-14 '58. (MIRA 11:6)

1.Chernivets'kiy derzhavniy universitet, kafedra fiziologii roslin.
(Polarity (Biology)) (Plants, Motion of fluids in)

MOLOTKOVSKIY, G.Kh.

Nature of the polarity and correlation between the aerial and underground parts of the beet [with summary in English]. Biul.MOIP. Otd.biol. 63 no.2:147-154 Mr-Ap '58 (MIRA 11:7)
(POLARITY (BIOLOGY))
(BEETS)

MOLOTKOVSKIY, G.Kh. [Molotkovs'kyi, H.Kh.], prof., otv.red.; ARTEMCHUK, I.V., dotsent, red.; GOROKHOVA, Z.N. [Horokhova, Z.N.], dotsent, red.; LIBERMAN, I., tekhred.

[Transactions of the Expedition for the Comprehensive Study of the Carpathian Mountains and Ciscarpathia] Pratsi. Chernovtsy, Vyd.Chernivets'koho dersh.univ. Vol.6. (Seriia biologichnykh nauk) Roslynni resursy. 1959. 143 p.

(MIRA 13:11)

1. Ekspedytsiia po kompleksnomu vyvchenniu Karpat i Prikarpattia. (Carpathian Mountain region--Botany, Economic)

MOLOTKOVSKIY, G.Kh. [Molotkovs'kyi, H.Kh.]

Theory of developmental polarity in higher annual plants. Ukr. bot.zhur. 16 no.4:19-31 '59. (MIRA 12:11)

1. Chernovitskiy gosudarstvennyy universitet.
(Polarity (Biology)) (Growth (Plants))

MOLOTKOVSKIY, G.Kh. [Molotkovs'kyi, H.Kh.]; GAMULA, M.I. [Hamula, M.I.]

Dynamics of ascorbic acid in potato tubers during storage in connection with the phenomenon of polarity. Ukr. bot. zhur. 17 no.6:28-38 '60. (MIRA 14:3)

1. Chernovitskiy gosudarstvennyy universitet, kafedra fiziologii rasteniy.

(Ascorbic acid) (Potatoes) (Polarity (Biology))

MOLOTKOVSKIY, G.Kh. [Molotkovs'kyi, H.Kh.]; MOLOTKOVSKIY, Yu.G. [Molotkovs'kyi, IU.H.]

Asymmetry, disymmetry, and polarity in the development of plants. Ukr. bot. zhur. 17 no.4:9-19 '60. (MIRA 13:9)

1. Chernovitskiy gosudarstvennyy universitet, Kafedra fiziologii rasteniy.

(Botany—Morphology)

MOLOTKOVSKIY, G.Kh.

The theory of polar development of plants. Pt.2. Biul. MOIP. Otd. biol. 65 no. 6:65-77 N-D '60. (MIRA 14:2)
(POLARITY (BIOLOGY)) (ONTOGENY (BOTANY))

MOLOTKOVSKIY, Georgiy Khrisanfovich; LYUBINSKIY, N.A., doktor biolog. nauk, otv.red.; POLUBICHKO, B.V., red.; MAKAVKO, A.V., tekhn.red.

[Polarity in plant development] Poliarnost' razvitiia rastenii. L'vov, Izd-vo L'vovskogo univ., 1961. 261 p. (MIRA 15:5)

(Polarity (Botany))

MOLOTKOVSKIY, O.Kh. [Molotkovs'kyi, O.Kh.]; BUDZANIVSKIY, M.M. [Budzanivs'kyi, M.M.]

Dynamics of the distribution of catalase and peroxidase activity in potato plants. Ukr.bot.zhur. 18 no.6:11-15 '61. (MIRA 15:3)

1. Chernovitskiy gosudarstvennyy universitet, kafedra fiziologii rasteniy.
(Potatoes) (Catalase) (Peroxidases)

MOLOTKOVSKIY, G.Kh.; MOLOTKOVSKIY, Yu.G.

Asymmetry, disymmetry, and polarity in the development of plants. Bot. zhur. 46 no.4:469-487 Ap '61. (MIRA 14:3)

1. Chernovitskiy gosudarstvennyy universitet.
(Botany—Morphology) (Symmetry (Biology)) (Polarity (Biology))

MOLOTKOVSKIY, G.Kh.

Polarity in the formation of organs of the beet root. Dokl. Ak SSSR 141 no.6:1490-1492 D '61. (MIRA 14:12)

1. Predstavleno akademikom A.L.Kursanovym.
(POLARITY (BIOLOGY)) (REGENERATION (BIOLOGY)) (BEETS)

MOLOTKOVSKIY, G.Kh. [Molotkovs'kyi, H.Kh.]

Polarity of the development of the carrot root. Ukr. bot. zhur. 19 no.6:55-59 '62. (MIRA 16:2)

1. Chernovitskiy gosudarstvennyy universitet, kafedra fiziologii rasteniy.

(Carrots) (Roots (Botany)) (Polarity (Biology))

KOSTYSHIN, S.S.; MOLOTKOVSKIY, G.Kh.

Effect of different photoperiods on the content of protein, sugars and dry substance in leaves and roots of corn hybrid between the Bukovina 3 and its parental forms. Nauch.dokl.vys.shkoly; biol. nauki no.3:145-148 '65. (MIRA 18:8)

1. Rekomendovana kafedroy fiziologii rasteniy Chernovitskogo gosudarstvennogo universiteta.

MOLOTKOVSKIY, G.Kh. [Molotkovs'kyi, H.Kh.]; KOSTISHIN, S.S. [Kostyshyn, S.S.]

Integrity and polarity of the heterotic hybrid corn (Zea mays L.) Bukovinskii 1,2,3. Ukr. bot. zhur. 22 no.3:11-18 '65. (MIRA 18:7)

1. Chernovitskiy gosudarstvennyy universitet, kafedra fiziologii rasteniy.

MOLOTKOVSKIY , Yu. G.

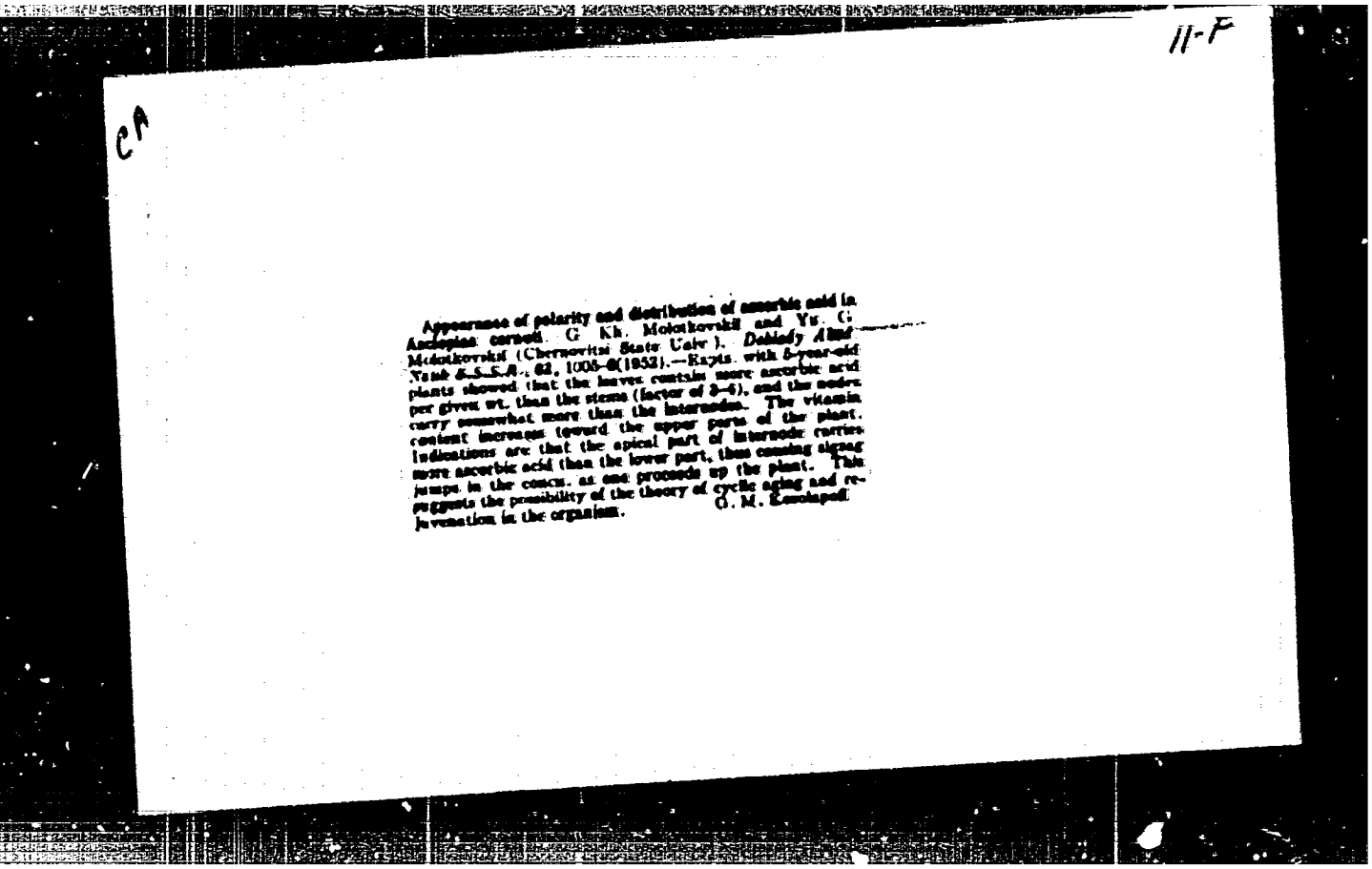
USSR/Biology - Rye 11 May 50
Fertilizers

"Effect of Some Environmental Conditions on the Formation of the Ear of Branch-Eared Rye", G. Kh. Molotkovskiy, Yu. G. Molotkovskiy, Chernovitsy State U, 3½ pp

"Dok Ak Nauk SSSR" Vol LXXII, No 2

Describes results of test conducted in 1948 on effect of different doses of mineral fertilizer, vernalization, and transplantation on degree of branching of rye plant ears. Tabulates effect of single, double, and triple doses of nitrogen-phosphorus-potassium fertilizer mixture and same mixture and doses without nitrogen on structure and yield of subject ears. All tests showed improvement over control plants but double dose NPK mixture showed the most. Submitted 20 Mar 50.

PA 160T6



11-F

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Appearance of polarity and distribution of ascorbic acid in Asclepias cornuti. G. Kh. Molotkovskii and Ys. G. Molotkovskii (Chernovitsi State Univ.). *Doklady Akad. Nauk S.S.S.R.*, 82, 1005-8(1952).—Expts. with 5-year-old plants showed that the leaves contain more ascorbic acid per given wt. than the stems (factor of 3–4), and the nodes carry somewhat more than the internodes. The vitamin content increases toward the upper parts of the plant. Indications are that the apical part of internode carries more ascorbic acid than the lower part, thus causing abrupt jumps in the concn. as one proceeds up the plant. This suggests the possibility of the theory of cyclic aging and rejuvenation in the organism. G. M. Kamalov

1. KOLOTKOVSKIY, G. Kh.; KOLOTKOVSKIY, Yu. G.

2. USSR (600)

4. Trees

7. New method of interrupting the rest period of tree plants, Dokl. AN SSSR, 89, No. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April, 1953, Uncl.

MOLOTKOVSKIY, G.Kh.; MOLOTKOVSKIY, Yu.G.; SUKACHEV, V.N., akademik.

Polarity and the concentration of hydrogen ions in metamers of some plants. Dokl. AN SSSR 90 no.6:1171-1173 Je '53. (MLRA 6:6)

1. Chernovitskiy gosudarstvennyy universitet. 2. Akademiya nauk SSSR (for Sukachev). (Botany--Physiology)

MOLOTKOVSKIY, Yu. G.

MOLOTKOVSKIY, G.Kh.; MOLOTKOVSKIY, Yu.G.; SLOBODYANSKAYA, D.V.

Relation of the polarity of metamers of cereals to the activity of oxidising enzymes and to the vitamin C content. Bot.zhur.[Ukr.] 11 no.1:67-72 '54. (MLRA 8:7)

1. Chernivets'kiy derzhavniy universitet, kafedra fiziologii roslin.
(Ascorbic acid) (Grain) (Enzymes)

MOLOTKOVSKIY, Yu. G.

Distribution of ascorbic acid in the axial organs of normally and horizontally growing plants of Asclepias cornuti and walnut. G. Kh. Molotkovskii and Yu. G. Molotkovskii (Odessa Univ., Chernovtsy). *Doklady Akad. Nauk S.S.S.R.* 103, 127–9 (1955). In C.A. 48, 4066g.—The axial polarity of distribution of ascorbic acid in artificially horizontally growing stem of *A. cornuti* is the same as that found in the vertically growing normal plant; the same is true of walnut. A difference is found in the transverse distribution, in that higher contents of ascorbic acid are found in the upper portion of such a stem than in the lower portion in transverse sections.

G. M. Kosolapoff

(1)

MOCHEKOVSKIY, Yu. G.

Physiological nature of heat resistance of some cultivated plants. N. S. Petinov and Yu. G. Molotkovskii (K. A. Timiryazev Inst. Plant Physiol., Moscow). *Fiziol. Rastenii* 3, 519-26(1956).—Expts. on artificial wilting by heat of plants of [illegible] [illegible] binding with the terminal product of [illegible] ... The [in]creased rate of formation of org. acids is assured only by a heat-resistant respiratory enzyme system. Heat resistance can be raised artificially by treatment of the plants with dil. solutions of citric acid. Spraying of plants with $ZnSO_4$ (0.05%) for extra-radical nutrition aids the accumulation of org. acids and thus raises the heat resistance of the plant.

G. M. Kosolapoff

MOLOTKOVSKIY, Yu. G., Cand of Bio Sci -- (diss) "On the question of the physiological nature of heat stability of certain crops." Moscow, 1957, 16 pp. (Institute of Plant Physiology im K. A. Timiryazev, AS USSR), 110 copies (KL, 30-57, 109)

MOLOTKOVSKIY Yu. G.

I-4

USSR/Physiology of Plants. Heat Regimen

Abs Jour : Ref Zhur-Biologiya, No 2, 1958, 5685

Author : N. S. Petinov, Yu. G. Molotkovskiy
Inst : Institute of Plant Physiology, Academy of Sciences USSR
Title : Defense Reaction of Heat-Resistant Plants Under the Effect of High Temperatures

Orig Pub : Fiziol. rasteniy, 1957, 4, No 3, 225-233

Abstract : Sunflower, squash, corn, oats, cucumbers and millet were grown under laboratory and greenhouse conditions at the Institute of Plant Physiology, Academy of Sciences USSR. The 30 day old plants were sprayed with solutions of organic acids to which emulsifier OP-7 was added. In the experiments with squash the acid solutions were injected into the area of the peteole of the leaves; in the experiments with oats-into the internodes of the

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KHYLOV, A.V.; MOLOTKOVSKIY, Yu.G.; LEBEDEV, G.V.; TARAKANOVA, G.A.

Earth's force of attraction as a factor of organ formation in plants. Fiziol. rast. 5 no.4:368-371 Jl-Ag '58. (MIRA 11:8)

1. Institut fiziologii rasteniy im. K.S. Timiryazeva AN SSSR, Moskva.
(Plants, Effect of gravity on) (Polarity (Biology))

PETINOV, N.S.; MOLOTKOVSKIY, Yu.G.

Effect of respiration inhibitors on the heat resistance of plants. Fiziol. rast. 7 no.6:665-672 '60. (MIRA 14:1)

1. K.A. Timiriazev Institute of Plant Physiology, U.S.S.R. Academy of Sciences, Moscow.
(Plants, Effect of heat on) (Plants—Respiration)

MOLOTKOVSKIY, G.Kh. [Molotkova'kyi, H.Kh.]; MOLOTKOVSKIY, Yu.G. [Molotkova'kyi, IU.H.]

Asymmetry, disymmetry, and polarity in the development of plants. Ukr. bot. zhur. 17 no.4:9-19 '60. (MIRA 13:9)

1. Chernovitskiy gosudarstvennyy universitet. Kafedra fiziologii rasteniy.

(Botany—Morphology)

MOLOTKOVSKIY, Yu.G.

Change in the adenosinetriphosphatase activity of subcellular plant units due to heat treatment. Fiziol. rast. 8 no.6:669-672 '61. (MIRA 16:7)

1. K.A. Timiriazev Institute of Plant Physiology, U.S.S.R. Academy of Sciences, Moscow.
(Adenosintriphosphatase)
(Plants, Effect of temperature on)

MOLOTKOVSKIY, Yu.G.

Specific features of metabolism in plants as related to their heat resistance. Izv. AN SSSR. Ser. biol. no.2:246-249 Mr-Ap '61. (MIRA 14:3)

1, Timiryazev Institute of Plant Physiology, Academy of Sciences of the U.S.S.R., Moscow.
(PLANTS, EFFECT OF HEAT ON)
(PLANTS—RESPIRATION)

MOLOTKOVSKIY, G.Kh.; MOLOTKOVSKIY, Yu.G.

Asymmetry, disymmetry, and polarity in the development of plants. Bot. zhur. 46 no.4:469-487 Ap '61. (MIRA 14:3)

1. Chernovitskiy gosudarstvennyy universitet.
(Botany—Morphology) (Symmetry (Biology)) (Polarity (Biology))

PETINOV, N.S., doktor biolog.nauk; MOLOTKOVSKIY, Yu.G., kand.biolog.nauk

Methods for increasing the heat resistance in plants. Vest.AN SSSR 32 no.8:62-64 Ag '62. (MIRA 15:8)
(Plants, Effect of temperature on)

MOLOTKOVSKIY, Yu.G.; SMIRNOV, A.M.

Effect of chloramphenicol on protein synthesis in plants. Fiziol. rast. 10 no.3:325-333 My-Je '63. (MIRA 16:6)

1. K.A.Timiriazev Institute of Plant Physiology U.S.S.R. Academy of Sciences, Moscow.
(Plants, Effect of chloramphenicol on) (Protein metabolism)

MOLOTKOVSKIY, Yu.G.; MORYAKOVA, V.F.

Role of nucleic acids and protein in induced chlorophyll biosynthesis. IZV. AN SSSR Ser. biol. 28 no.5:719-723 S-O'63 (MIRA 16:11)

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

*

PETINOV, N.S.; MOLOTKOVSKIY, Yu.G.; FEDOROV, P.S.

Effect of zinc on the increase in heat resistance of plants. Dokl. AN SSSR 153 no.5:1210-1212 D '63. (MIRA 17:1)

1. Institut fiziologii rasteniy im. K.A. Timiryazeva AN SSSR. Predstavleno akademikom A.L. Kursanovym.

RYABOVA, I. D.; MOLOTKOVSKY, Yu. G.; BERGEL'SON, L. D.

"Investigation of antimicrobial properties of unsaturated macrocyclic lactones."

report submitted for Antibiotics Cong, Prague, 15-19 Jun 64.

Inst for Chemistry of Natural Compounds, AS USSR, Moscow.

MOLOTKOVSKIY, Yu.G.; ZHESTKOVA, I.M.

Mechanism of the protective action of sugars at high temperatures. Fiziol. rast. 11 no.2:301-307 Mr-Ap '64. (MIRA 17:4)

1. Timiriazev Institute of Plant Physiology, U.S.S.R. Academy of Sciences, Moscow.

MOLOTKOVSKIY, Yu.G.; KASHURO, V.F.

Role of protein synthesis in the alternation of respiratory systems in discs prepared from potato tubers. Dokl. AN SSSR 158 no.1:239-241 S-O '64 (MIRA 17:8)

1. Institut fiziologii rasteniy imeni K.A. Timiryazeva AN SSSR. Predstavleno akademikom A.L. Kursanovym.

L 39876-66 EWT(1) [illegible]

ACC NR: AP6018148 (A,N) SOURCE CODE: UR/0126/65/012/006/1017/1023

AUTHOR: Molotkovskiy, Yu. G.; Zhestkova, I. M.

ORG: Institute of Plant Physiology im. K. A. Timiryazev, AN SSSR, Moscow (Institut fiziologii rasteniy AN SSSR)

TITLE: Morphological and functional modifications of isolated chloroplasts induced by oleate

SOURCE: Fiziologiya rasteniy, v. 12, no. 6, 1965, 1017-1023

TOPIC TAGS: chlorophyll, plant physiology, oleic acid, protein, organic phosphorus compound, plant chemistry

ABSTRACT: Investigations were conducted to determine the effect of unsaturated fatty acids, such as oleates, on the morphology and photochemical activity of isolated chloroplasts. Leaves of the broadbean — Vicia faba — which contain large chloroplasts capable of photophosphorylitic activity were used in the experiments. The plants were grown in a greenhouse supplied with supplemental illumination by fluorescent lamps. The chloroplasts were isolated from the plants after 10-14 days of growth by the Arnon method. The residue obtained was suspended in a medium which was kept on ice as the initial material. The standard incubation medium for the Hill reaction consisted of 0.025 molar tri-buffer pH 7.8; 3 micromolar ferricyanide; a suspension of chloroplast containing 0.06 - 0.09 milligrams of chlorophyll. The reaction was induced by the exposure of the incubation medium to 42,500 lux for a period of 10 minutes. The experimental part of the investigations sought to estab-

Card 1/2 UDC: 581.174:582.132

L 39876-66
ACC NR: AP6018148

5(3)

AUTHORS: Sarycheva, I. K., Molotkovskiy, Yu. G., Vorobjeva, G. A., Preobrazhenskiy, N. A.

SOV/79-29-4-16/77

TITLE: Complete Synthesis of 2-Methyl-3-phytyl-naphthoquinone-1,4 Vitamin K_1 (Polnyy sintez 2-metil-3-fitilnaftokhinona-1,4-vitamina K_1)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1123-1126 (USSR)

ABSTRACT: In the present paper the synthesis of vitamin K_1(I) is described which is based on the condensation of 2-methyl-naphtho-hydroquinone-1,4 (II) with isophytol (III) in the presence of the ether compound of trifluoborate (Scheme) (Ref 7). The initial product for (III) was the pseudo-ionone (IV) (Ref 8). The pseudo-ionone is hydrogenated in the autoclave in the presence of the nickel catalyst to give compound (V) which is directly oxidized with the chromium mixture to (VI) without any separation. Compound (VI) is transformed with sodium acetylenide into (VII) which is converted by acetoacetic ester first into (VIII) and then via (IX) into (X). The condensation of (X) takes

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Complete Synthesis of 2-Methyl-3-phytyl-naphthoquinone-1,4 Vitamin K_1 SOV/79-29-4-16/77

place with sodium acetylenide with (XI) being formed. (XI) is reduced in the presence of the palladium catalyst to give isophytol (III). It must be mentioned that the physico-chemical constants of isophytol which was synthesized from linaloöl (Ref 11) were somewhat different from the given sample, obviously owing to the predominance of various diastereoisomeric forms in them. The product of the reaction of isophytol (III) with 2-methyl-naphthohydroquinone-1,4 (II) is the 2-methyl-3-phytyl-naphthohydroquinone-1,4 (XII). This is oxidized to give the end product (I), the vitamin K_1. The vitamin K_1 synthesized by the authors corresponds with the natural one as far as its properties are concerned; this was confirmed by the spectroscopic investigation (Fig). There are 1 figure and 15 references, 5 of which are Soviet.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Fine Chemical Technology)

SUBMITTED: March 4, 1958

Card 2/2

BROKL'SON, L.D.; MOLOTKOVSKIY, Yul.G.; SHOSTAKIN, M.M.

Synthesis of macrocyclic diacetylenic lactones. Izv.AN SSSR. Otd.khim.nauk no.6:1139 Jl '60. (MIRA 13:7)

1. Institut khimii prirodnykh soyedineniy Akademii nauk SSSR.
(Lactones) (Acetylene compounds)

BERGEL'SON, L.D.; LEVITOV, M.M.; MOLOTKOVSKIY, Yul.G.; SAZYKIN, Yu.O.; SHEMYAKIN, M.M.

Synthesis and study of the antimicrobial action of the simplest analogues of macrolide antibiotics. Antibiotiki 6 no.7:581-585 Jl '61. (MIRA 15:6)

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(ANTIBIOTICS)

BERGEL'SON, L.D.; MOLOTKOVSKIY, Yul.G.; ILYUKHINA, L.I.

New synthetic method for the preparation of macrocyclic ketones. (MIRA 14:11)
Izv.AN SSSR.Otd.khim.nauk no.11:2099-2100 N '61.

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(Ketones)

BERGEL'SON, L.D.; MOLOTKOVSKIY, Yul.G.

Tri- and tetraacetylenic macrocyclic lactones. Izv.AN SSSR. Otd.khim.nauk no.3:539-540 Mr '62. (MIRA 15:3)

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(Acetylene compounds) (Lactones)

BERGEL'SON, L.D.; MOLOTKOVSKIY, Yu.G.; SHEMYAKIN, M.M.

Unsaturated acids and macrocyclic lactones. Part 1: Synthesis of diactylenic and diene macrocyclic lactones. Zhur. ob. khim. 32 no.1:58-64 Ja '62. (MIRA 15:2)

1. Institut khimii prirodnykh soyedineniy AN SSSR.
(Lactones)

ZERKEL'SON, L. D.; MOLOTKOVSKIY, Yul. G.

Unsaturated acids and macrocyclic lactones. Report No. 6: Tri- and tetraacetylene macrocyclic lactones and corresponding polyenes. Izv. AN SSSR. Otd. khim. nauk no.1:105-112 '63. (MIRA 16:1)

1. Institut khimii prirodnykh soyedineniy AN SSSR.

(Lactones) (Unsaturated compounds)

BERGEL'SON, L.D.; MOLOTKOVSKIY, Yu.G.

Unsaturated acids and macrocyclic lactones. Report No. 12: Synthesis of macrocyclic β-hydroxylactones. Izv. AN. SSSR. Ser.khim. no. 5:860-863 My '64. (MIRA 17:6)

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