L 47745-65 EWT(1)/FCC GW

ACCESSION NR: AT5012856 UR/2648/65/000/022/0051/0059

AUTHOR: Sitnikova, M. V.

TITLE: Atmospheric turbidity in Central Asia

SOURCE: Tashkent. Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut. Trudy, no. 22 (37), 1965. Voprosy biometeorologii i aktinometrii (Problems in biometeorology and actinometry), 51-59

TOPIC TAGS: atmospheric turbidity, solar radiation attenuation, optical density, atmospheric transparency, atmospheric humidity, atmospheric aerosol

ABSTRACT: The purpose of this work was to estimate the atmospheric transparency in Central Asia from data obtained over a 6-year period at 0930, 1230, and 1530 at the stations at Takhia-Tash, Termez, Churuk, Beki-Bent, and Gasan-Kuli. Relationships have been obtained (in the form of curves) between the primary solar radiation, absolute humidity, and visibility from observations on days with cloud covers of ≤ 2 units. Measurements are reduced to $h_{\odot} = 60°$ and to the mean sun-earth distance. Correlation coefficients for the Beki-Bent, Gasan-Kuli, and Takhia-Tash stations were 0.94, 0.95, and 0.90 respectively. The article also contains the annual variation in the turbidity coefficient N (as defined by L. G. Makhotkin, Trudy GGO,

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L 47745-65

ACCESSION NR: AT5012856

no. 80, 1959) (tabulated), the annual variation of parameter α introduced by Ye. A. Lopukhin (Izv. AN UzbSSR, no. 6, 1963) (tabulated) for estimating the attenuation of the direct solar radiation by water vapor and aerosols, a chart showing the geographic distribution of the turbidity index (month of July) (see Fig. 1 of the Enclosure), graphs of the optical density for three high-altitude stations, a graph of transparency versus turbidity, and the annual variation of the coefficient describing the variation in optical density with altitude (tabulated). Orig. art. has: 2 formulas, 4 figures, and 5 tables. [08]

ASSOCIATION: Sredneaziatskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut, Tashkent (Central-Asian Scientific Research Institute of Hydrometeorology)

SUBMITTED: 00 ENCL: 01 SUB CODE: ES

NO REF SOV: 005 OTHER: 000 ATD PRESS: 4005

Card 2/3

SITNIKOVA, N.N.

Specificity of the precipitation test with haptens for the detection of Eberthella typhi in water. Gig. i san. 25 no.4:63-66 Ap '60. (MIRA 13:8)

1. Iz Instituta epidemiologii i mikrobiologii imeni N.F. Gamalei AMN SSSR.

(WATER—BACTERIOLOGY) (EBERTHELLA TYPHOSA)

BULATOVA, T.I., kand.med.nauk; SITNIKOVA, N.N., nauchnyy sotrudnik; SERGEYEVA, T.I., nauchnyy sotrudnik

Prevention and treatment of botulism. Med. sestra 20 no.6:23-26 Je '61. (MIRA 14:7)

1. Iz Institut epidemiologii i mikrobiologii imeni N.F.Gamalei AMN SSSR, Moskva.

(BOTULISM)

IVANOVA, L.G.; SERGEYEVA, T.I.; PLOSKIREV, N.V.; SITNIKOVA, N.N.

Dry medium for the diagnosis of food poisoning caused by Clostridium botulinum and Clostridium perfringens. Lab. delo 8 no.4:33-36 Ap '62. (MIRA 15:5)

1. Institut epidemiologii i mikrobiologii imeni N.F.Gamalei AMN SSSR (dir. O.V.Baroyan).
(FOOD POISONING) (CLOSTRIDIUM)
(BACTERIOLOGY--CULTURES AND CULTURE MEDIA)

L 10[illegible]-67 EWT(1) SCTB DD/RO/JK/GD
ACC NR: AT6030986 SOURCE CODE: UR/0000/66/000/000/0213/0213

AUTHOR: Kozyrevskaya, G. I.; Kolovskova, Yu. S.; Sitnikova, N. N.; Chizhov, S. V.; [illegible], A. P.

ORG: none

TITLE: The question of drinking water preservation with ion silver [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 213

TOPIC TAGS: life support system, water purification, silver ion, space nutrition

ABSTRACT: A water-preservation method suitable for spaceflight must keep the taste qualities of drinking water, while preventing development of microflora even after secondary contamination. Most physical methods of disinfecting water can only be used immediately before drinking, since they have an insufficient aftereffect. Biological purification methods are not presently used because of the unfavorable effects of antibiotics on the human organism. The most effective and least toxic of the chemical preservatives are silver preparations.

Experimental data are presented from a 1961—1965 study of the

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L 10969-67
ACC NR: AT6036586

properties of ionic silver as a drinking-water preservative. It was established that the minimum silver dose which ensures a stable bactericidal effect for six months is a dose of 0.1 mg/liter. Doses of silver ions ten or more times larger than the minimum bactericidal dose did not have a toxic effect on experimental animals. Human comsumption of water preserved with silver ions in a dose of 0.1 mg/liter for 15 days did not result in any pathological shifts in the functional condition of those organs and systems most susceptible to the effect of silver.

Experimental material demonstrates the effective preserving qualities of silver ions and the absence of a toxic effect of the preservative on human and animal organisms. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 2/2

SITNIKOVA, O. A.

"Reasons for the Rapid Loss of Germination in Seeds of the Poplar and Willow," Dok. An., 70, No. 4, 1950. Mbr., Moscow State Pedagogical Inst., -c1950-.

SITNIKOVA, O. A. Cand. BiologicalSci.

"Ecologophysiological Study of the Conditions of Rest in Plants."
Sub 12 Apr 51, Moscow Oblast Pedagogical Inst.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

GENKEL', P.A., professor, doktor biologicheskikh nauk; SIONIKOVA, O.A., kandidat biologicheskikh nauk.

Experiments in the study of winter dormancy in plants. Est.v shkole no.6:24-32 '53. (MLRA 6:10)

(Botany--Physiology) (Plants--Frost resistance)

GENKEL', P.A.; SITNIKOVA, O.A.

State of dormancy and frost resistance of plants. Trudy Inst. fiziol. rast. 8 no.1:276-288 '53. (MLRA 6:12)

1. Institut fiziologii rastenii im. K.A.Timiryazeva Akademii nauk SSSR, Moskovskiy oblastnoy pedagogicheskiy institut. (Plants--Frost resistance) (Botany--Physiology)

GENKEL', P.A.; SARYCHEVA, A.P.; SITNIKOVA, O.A.

Effect of variable temperature seed treatment on corn development and ripening. Fiziol.rast. 2 no.5:447-453 S-O '55. (MLRA 9:2)

1.Kafedra botaniki Moskovskogo oblastnogo pedagogicheskogo instituta.
(Corn (Maize)) (Plants, Effect of temperature on)

SITNIKOVA, O.A.

Effect of gibberellic acid on some properties of the protoplasm.
Fiziol. rast. 9 no.1:109-111 '62. (MIRA 15:3)

1. N.K.Krupskaya Moscow Region Pedagogical Institute.
(Protoplasm) (Plants, Effect of gibberellic acid on)

S/078/60/005/010/013/021
B004/B067

AUTHORS: Savitskaya, Ya. S., Gurevich, M. A., Kalabukhova, S. V., Sitnikova, S. I.

TITLE: The Problem of the Formation of Solid Solutions in the System Y_2O_3 - Sc_2O_3 by Means of Thermal Decomposition of the Isomorphously Coprecipitated Yttrium - Scandium Oxalate

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 10, pp. 2300-2306

TEXT: In the introduction, the authors point out that the formation of solid solutions of oxides and rare earths by sintering directly mixtures of oxides has certain disadvantages (high temperatures, long duration of reaction). Hence, they studied the possibility of obtaining such solutions from coprecipitated oxalates:

$$(Y,Sc)_2(C_2O_4)_3 \cdot nH_2O \xrightarrow{t^\circ} (Y,Sc)_2O_3 + CO + CO_2 + nH_2O.$$

Y_2O_3 and Sc_2O_3

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S/078/60/005/010/013/021
B004/B067

The Problem of the Formation of Solid Solutions in the System Y_2O_3 - Sc_2O_3 by Means of Thermal Decomposition of the Isomorphously Coprecipitated Yttrium - Scandium Oxalate

were used as initial substances. By heating them to 1000°C, their impurities were removed (for analytical data see Table 1). They were dissolved in hydrochloric acid "pure pro analysi", evaporated, and 0.1 M solutions were obtained. Mixtures of these chlorides at a molar ratio (related to oxide) of Y_2O_3 : Sc_2O_3 from 1 : 1.64 to 4 : 1.64 were heated to 95°C and precipitated by means of chemically pure oxalic acid of the same temperature.(Table 2). The thermal decomposition curves of pure yttrium and scandium oxalates, as well as of the coprecipitated oxalate were taken (Fig. 1, Table 3). In contrast to the temperatures at which the mechanical mixtures of the pure oxalates start decomposing, the decomposition temperature of the coprecipitated oxalate was between the temperatures for pure oxalates. The pure oxalates and the coprecipitated oxalate were heated to 900°C, and their X-ray pictures were taken. The values for Y_2O_3 are given in Table 4. As may be seen from Table 5 and Fig. 2, a continuous series of solid solutions of the oxides is formed, with the lattice constant changing steadily from a = 10.61 kX (pure Y_2O_3)

Card 2/3

SITNIKOVA, T.A.; KEYLIN, G.S.

Properties of Kh13N4G9 stainless steel in drawing. Med.prom. no.3: 35-36 Jl-S '55. (MIRA 9:12)

1. Mediko-instrumental'nyy ordena Lenina zavod "Krasnogvardeyets."
(APPARATUS AND INSTRUMENTS,
stainless steel)

SOV/137-58-9-19996

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 272 (USSR)

AUTHORS: Sitnikova, T.A., Keylin, G.S., Lozovskiy, V.L.

TITLE: Effect of Heat Treatment on the Properties of 2Kh13 Stainless Steel (Vliyaniye termicheskoy obrabotki na svoystva nerzhaveyushchey stali 2Kh13)

PERIODICAL: Materialy po obmenu opytom i nauchn. dostizh. v med. prom-sti, 1957, Nr 6 (25), pp 110-112

ABSTRACT: Ref. RZhMet, 1958, Nr 6, abstract 13443

1. Stainless steel--Properties 2. Stainless steel--Heat treatment
3. Heat--Metallurgical effects

Card 1/1

SITNIKOVA, T.A.; KEYLIN, G.S.; LOZOVSKIY, V.L.

Effect of heat treatmen t on the properties of 2Kh13 stainless steel. (MIRA 10:12)
Med.prom. 11 no.9:25-29 S '57.

1. Mediko-instrumental'nyy ordena Lenina zavod "Krasnogvardeyets"
(STEEL, STAINLESS--HEAT TREATMENT)

SITNIKOVA, T.A.; KEYLIN, G.S.

Increasing the strength of matrixes for automatic cold-upsetting machinery and draw dies. Med.prom.12 no.3:47-48 Mr '58. (MIRA 11:4)

1. Mediko-instrumental'nyy ordena Lenina zavod "Krasnogvardeyets".
(DIES (METALWORKING)

SITNIKOVA, T.A.; KEYLIN, G.S.; LOZOVSKIY, V.L.

Manufacture of tools by the weld seam method using I-2 electrodes. (MIRA 13:5)
Med.prom. 14 no.2:31-33 F '60.

1. Mediko-instrumental'nyy zavod "Krasnogvardeyets".
(TOOLS)

SITNIKOVA, T.A.; KEYLIN, G.S.

Some results of the work of the industrial and technical council of the "Krasnogvardeets" Factory. Med.prom. 14 no.4:44-46 Ap '60. (MIRA 13:6)

(INDUSTRIAL MANAGEMENT)

SITNIKOVA, T.A.; LOZOVSKIY, V.L.

Manufacture of instruments from EL-603 steel. Med. prom. 14 no.9: 54 S '60. (MIRA 13:9)

1. Mediko-instrumental'nyy zavod "Krasnogvardeyets".
(MEDICAL INSTRUMENTS AND APPARATUS)

SITNIKOVA, T.A.; KEYLIN, G.S.

Production of ocular trephines from KH18 stainless steel.
Med. prom. 16 no.2:50-52 F '62. (MIRA 15:3)

1. Mediko-instrumental'nyy zavod "Krasnogvardeyets".
(SURGICAL INSTRUMENTS AND APPARATUS)
(STEEL, STAINLESS)

SITNIKOVA, T.A.; KEYLIN, G.S.; LOZOVSKIY, V.L.

Raising the quality of springs for medical instruments. Med. prom. 16 no.3:48-50 Mr '62. (MIRA 15:5)

1. Mediko-instrumental'nyy zavod "Krasnogvardeyets".
(MEDICAL INSTRUMENTS AND APPARATUS)

KEYLIN, Grigoriy Samuilovich; LOZOVSKIY, Vladimir L'vovich; SITNIKOVA, Tamara Aleksandrovna; MIKHAYLOV-MIKHEYEV, P.B., red.; TELYASHOV, R.Kh., red.izd-va; GVIRTS, V.L., tekhn. red.

[Effect of heat treatment of the properties of chromium stainless steels; from practices at the "Krasnogvardeets" Plant] Vliianie termicheskoi obrabotki na svoistva khromistykh nerzhaveiushchikh stalei; opyt zavoda "Krasnogvardeets." Leningrad, 1963. 17 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Seriia: Metallovedenie i termicheskaia obrabotka, no.1) (MIRA 16:8)

(Steel, Stainless--Heat treatment)

SOV/112-59-3-4663

14(10)

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 3, p 53 (USSR)

AUTHOR: Sitnikova, T. F.

TITLE: Foreign Methods of Large-Cross-Section Tunneling Work
(Zarubezhnyye metody sooruzheniya tunneley bol'shogo secheniya)

PERIODICAL: V sb.: Energ. str-vo. Vol I, M.-L., 1958, pp 54-58

ABSTRACT: Bibliographic entry.

Card 1/1

KOMISSAROV, S.M., inzh.; SITNIKOVA, T.F., inzh.

New design of electric high frequency drives. Izobr. i rats. 3 no.5:18-20 My '58. (MIRA 11:9)
(Electric driving)

S/136/61/000/001/008/010
E193/E283

18 3100 1436, 1459 only

AUTHORS: Glukhov, V.P., Sitnikova, T.G. and Fedotov, I.A.

TITLE: Recovery of Selenium from Slimes by the LGI Method on Pilot Scale Plant

PERIODICAL: Tsvetnyye metally, 1961, No.1, pp.83-84

TEXT: A method, based on oxidizing roasting of granulated slimes followed by absorption of selenium anhydride by a separate layer of hot sodium carbonate, has been developed at the Leningradskiy Gorniy Institut (Leningrad Mining Institute). The selenium-bearing compounds, obtained in this manner, can be processed either by precipitation of selenium from acidic solutions, or by reduction and precipitation of selenium from selenide solutions. The main advantage of this process over the current method of roasting an intimate mixture of slime and sodium carbonate is that higher recovery of selenium is attained in fewer operations, whereby the consumption of materials and electric power is reduced. In pilot plant scale trials, conducted in August and September, 1960 at one of the Soviet Works, slimes from electrolytic refining of copper, containing 6.0-8.0% Se, 1.0% Te, 19-20% Cu, 25% Ni, 1.5% Fe, 3.0% S,

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S/136/61/000/001/008/010
E193/E283

Recovery of Selenium from Slimes by the LGI Method on Pilot Scale Plant

and 25-30% H_2O, were used as the raw material. The main constituents of the slimes were copper and nickel oxides, 85% of nickel being present in the form of bunsenite, NiO. Selenium was present as Ag_2Se and partly in the form of selenides of the platinum metals. The roasting plant consisted of an air heater, a slimes roasting furnace, 2 (1st and 2nd) sodium carbonate furnaces for absorption of selenium, heat exchanger for gases, 2 vacuum pumps, and a pan granulator for pelletizing the raw materials. After preliminary drying (in a vacuum drier) to a moisture content of 15-16%, the slimes were converted to granules 3-10 mm in diameter. Sodium carbonate was granulated in a similar manner after preliminary moistening to a moisture content of 30-33%, and both materials (in the wet state) were then charged into the furnace. After all leaks had been sealed with asbestos tape, the vacuum pump and the roasting furnaces were switched on. At the same time, the fire box of the heater was ignited and air, pre-heated to 600-700°C, was fed into the furnace. In the new method, the heat required for roasting the

Card 2/4

S/136/61/000/001/008/010
E193/E283

Recovery of Selenium from Slimes by the LGI Method on Pilot Scale Plant

charge is supplied mainly by air; the heating elements of the electric furnace serving only to compensate the heat losses. The operating temperature of 620-650°C is attained in 2-3 h. The charge is roasted in a stationary layer (no rabbling is employed); the duration of the process depending on the specific air consumption per unit weight of slime which, in this particular case, amounts to 5-6 m^3/kg. With 800-900 kg (dry weight) of slime charged in the furnace, operating at 620-630°C, the specific air consumption of 6 m^3/kg of slime is sufficient to ensure that all selenium di-oxide is distilled off from the charge; the selenium content in the slime residues being 0,01-0,1%. 90% of selenium present in the gaseous phase is absorbed by the first layer of sodium carbonate which, after the completion of the process, contains 20-21% selenium. After roasting, the furnaces are cooled and discharged. The slime residue is subjected to further processing; and the selenium-rich sodium carbonate (from the 1st furnace) is transferred to the selenium shop, where it is dissolved in water; after which selenium is precipitated (with sulphur dioxide) from the acidified solution.

Card 3/4

S/136/61/000/001/008/010
E193/E283

Recovery of Selenium from Slimes by the LGI Method on Pilot Scale Plant

Sodium carbonate from the 2nd furnace is used again until it becomes saturated with selenium. At present, work is being completed on designing an industrial plant (expected to be in operation at the beginning of 1961) for recovery of selenium from slimes by the process described above.

Card 4/4

GLUKHOV, V.P.; SITNIKOVA, T.G.; FERBERG, M.B.

Selenium recovery from the granulated copper slime from industrial roasting furnaces. TSvet. met. 36 no.3:83-84 Mr '63. (MIRA 16:5)
(Selenium--Metallurgy)

GLUKHOV, V.P., SITNIKOVA, T.G., FEDOTOV, I.A.

Selenium recovery from slags by a method devised by the Leningrad Mining Institute with pilot-plant equipment. Tsvet. met. 34 no.1:83-84 Ja '61. (MIRA 17:3)

SITNIKOVA, V. P., Master Med Sci --(diss) "The importance of the electrocardiograph in diagnosing children's congenital heart diseases." Moscow, 1957, 21 pp. (Second Moscow State Med Inst im. N. I. Pirogov), 200 copies

(KL, No 40, 1957, p.96)

PROCESSES AND PROPERTIES INDEX

CA

Effects of the concentration of emulsifiers and of the stirring speed on the stability of oil emulsions. N. I. Kozin and E. N. Sitnikova. *Voprosy Pitaniya* 8, No. 4, 50-7(1939); cf. C. A. 33, 2604.—The stirrer speed was variable from 600 to 1200 r./min. Oil was added at the rate of 100 cc. every 235 sec. Aq. solns. of dry albumin (I), egg yolk (II), Na caseinate (III) and casein lactate (IV) were used as emulsifiers. At 1200 r./min. in emulsions with I or III in concns. of 0.25% (per aq. phase) the sepn. occurs at a water-oil ratio of 1:3.3. With IV (0.25%) the sepn. occurs at 1:4.2. With III at 5% the emulsion seps. at 1:15.4. With IV at 5% the relation is 1:10.8. At higher concns. of the emulsifiers the sepn. occurs at a lower oil content. The lowering of the amts. of oil causing sepn. depends, according to the concn. of the emulsifiers, on the abs. increase of the amt. of emulsifier and the decrease of the amt. of water per unit of vol. of the soln. in relation to the amt. of emulsifier. In the emulsifiers studied the dispersion depends also on the stirring speed. Thus the amt. of water bound to the emulsifier is linked with the degree of dispersion. The unadsorbed water decreases with increased emulsifier concn. and stirring speed. Addn. of the first portions of oil decreases the concn. to a point where the adsorption layer becomes undersatd. and a slight excess of oil will cause the appearance of rarified films lacking the proper mech. strength for protection.

T. Laanes

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

KOZIN, N.I.; SITNIKOVA, Ye.N.

Effect of phosphatides on the processes taking place in vegetable oils during storage. Izv.vys.ucheb.zav.;pishch.tekh.no.5:24-30 '60. (MIRA 13:12)

1. Moskovskiy institut narodnogo khozyaystva imeni G.V.Plekhanova. Kafedra tovarovedeniya prodovol'stvennykh tovarov.
(Oils and fats--Storage) (Phosphatide)

KOZIN, N., prof.; SITNIKOVA, Ye.

Storage of liquid oils and fats in a carbonic acid atmosphere.
Sov.torg. 33 no.1:51-53 Ja '60. (MIRA 13:4)

1. Laboratoriya zhirov Instituta narodnogo khozyaystva imeni Plekhanova.
(Oils and fats)

KOZIN, N.I.; SITNIKOVA, Ye.N.

Storing liquid fats in an atmosphere of carbon dioxide. Izv. vys.ucheb.zav.; pishch.tekh. no.6:20-24 '[illegible]. 19[illegible] (MIRA 13:5)

1. Moskovskiy institut narodnogo khozyaystva imeni G.V. Plekhanova. Laboratoriya zhirov.
(Oils and fats--Storage) (Carbon dioxide)

EINIS, V.L.; SITNIKOVA, Yu.Z. (Moskva)

Differentiation of round tubercular foci. Klin.med. 34 no.8:49-59 Ag '56. (MIRA 12:8)

1. Iz Moskovskoy gorodskoy tsentral'noy klinicheskoy tuberkuleznoy bol'nitsy.
(TUBERCULOSIS, PULMONARY, pathol.
classif. of circular foci)

SITNIKOVA, Yu.Z. (Moskva)

Cavernous forms of peripheral lung cancer. Klin.med. 36 no.12:64-67 D '58. (MIRA 12:6)

1. Iz Moskovskoy gorodskoy tsentral'noy klinicheskoy tuberkuleznoy bol'nitsy (nauchnyy rukovoditel' - prof.V.L.Kynis).
(LUNG NEOPLASMS, case reports
peripheral, cavernous forms (Rus))

SITNIKOV, Z. I.

USSR/Geology

Card 1/1 : Pub. 22 - 38/44

Authors : Sitnikova, Z. I.

Title : Discovery of effusions of the Cenozoic era in the Chelyabinsk Coal Basin

Periodical : Dok. AN SSSR 98/6, 1023-1025, October 21, 1954

Abstract : Report on the discovery of Cenozoic era effusions in the Chelyabinsk Coal Basin of the USSR is presented. Four USSR references (1949-1954).

Institution : Academy of Sciences USSR, Ural Branch, Geological-Mining Institute

Presented by: Academician A. G. Betekhtin, August 11, 1954

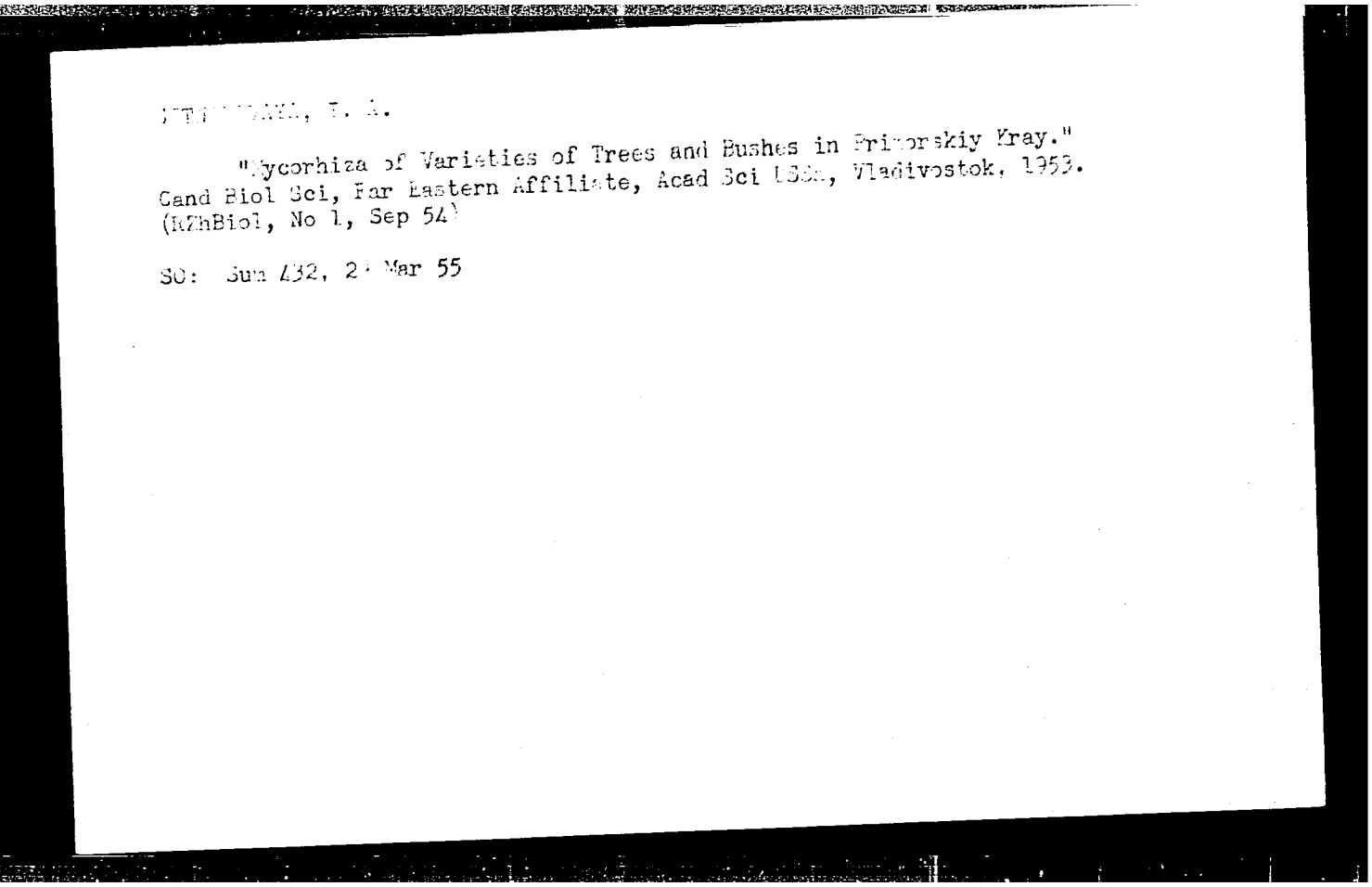
SITNIKOVA, Z. I.

Cross section of Upper Cretaceous marine sediments in the Southern Urals. Trudy Gor.-geol. inst. UFAN SSSR no.61:49-68 '61. (MIRA 15:10)

(Ural Mountains--Geology, Stratigraphic)
(Deep-sea deposits)

[illegible], Georgiy Nikolayevich; [illegible]VA, Zoya Ivanovna; ARKHANGEL'SKIY, N.I., otv.red.

(Mesozoic and Paleogene sediments in the region of the Turinsk key well in the Central West Mountains). Mezozoiskie i paleogenovye otlozheniia rainona Turinskoi opornoi skvazhiny v Srednem Zaural'e. Sverdlovsk, 1961. 97 p. (Akademiia nauk SSSR. Ural'skii filial. Sverdlovsk. Institut geologii. Trudy, no.68).
(MIRA 17:7)



[illegible], T. A.

"Mycorhiza of Varieties of Trees and Bushes in Primorskiy Kray." Cand Biol Sci, Far Eastern Affiliate, Acad Sci USSR, Vladivostok, 1953. (RZhBiol, No 1, Sep 54)

SO: Sum 432, 2 Mar 55

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

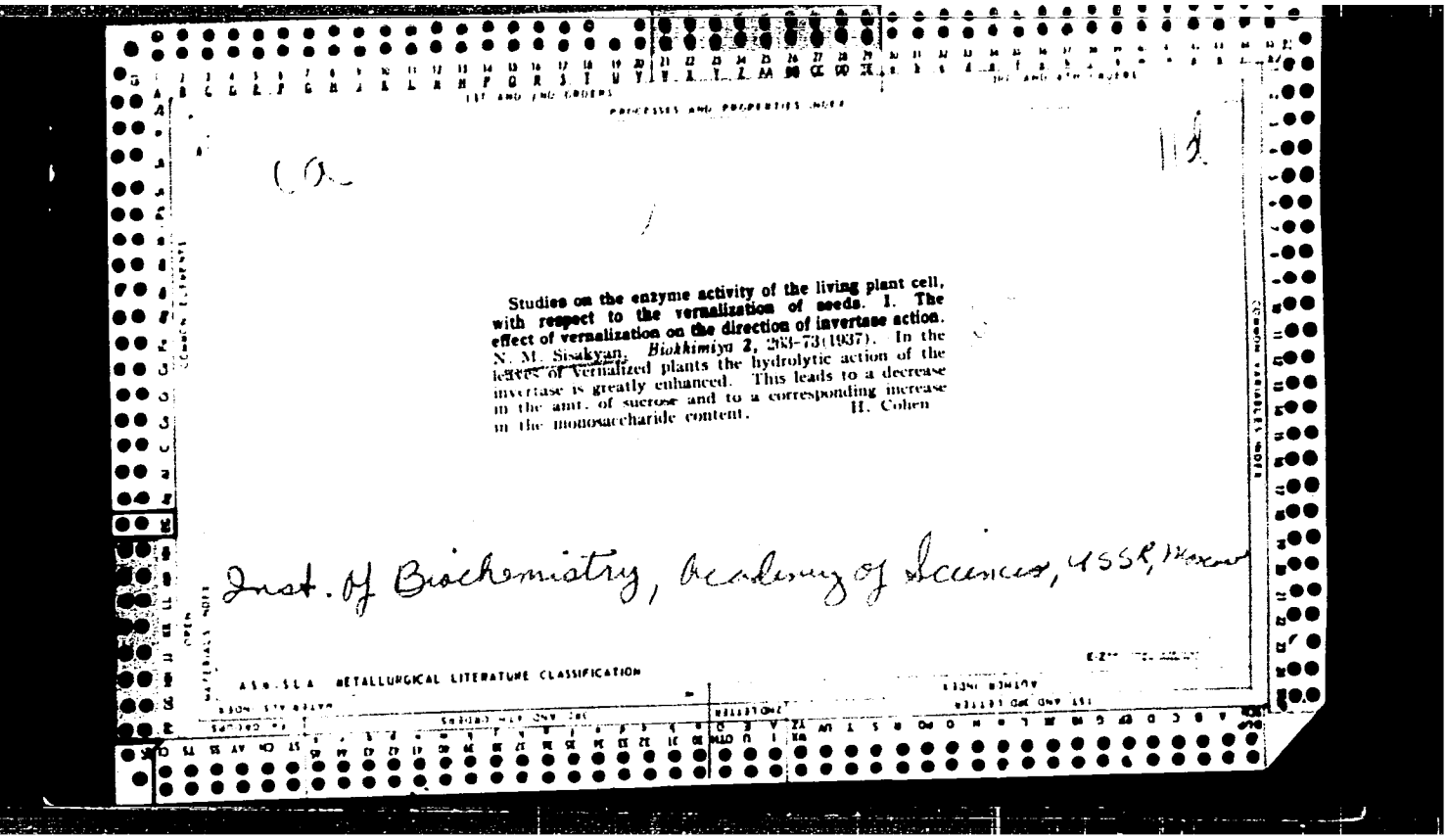
ca

15

The role of phosphates in the process of sugar accumulation in the sugar beet. N. M. Sisakyan. *Biokhimiya* 1, 201-20(1936).—Roots of plants deprived of phosphates contain less sucrose than control plants. A corresponding accumulation of maltose and a maltose-like sugar is observed. H. Cohen

(Inst. of Biochemistry Academy of Sciences USSR and the D. N. Pryanishnikov Lab. of the Inst. of Agro-Chemistry and Agriculture, Moscow)

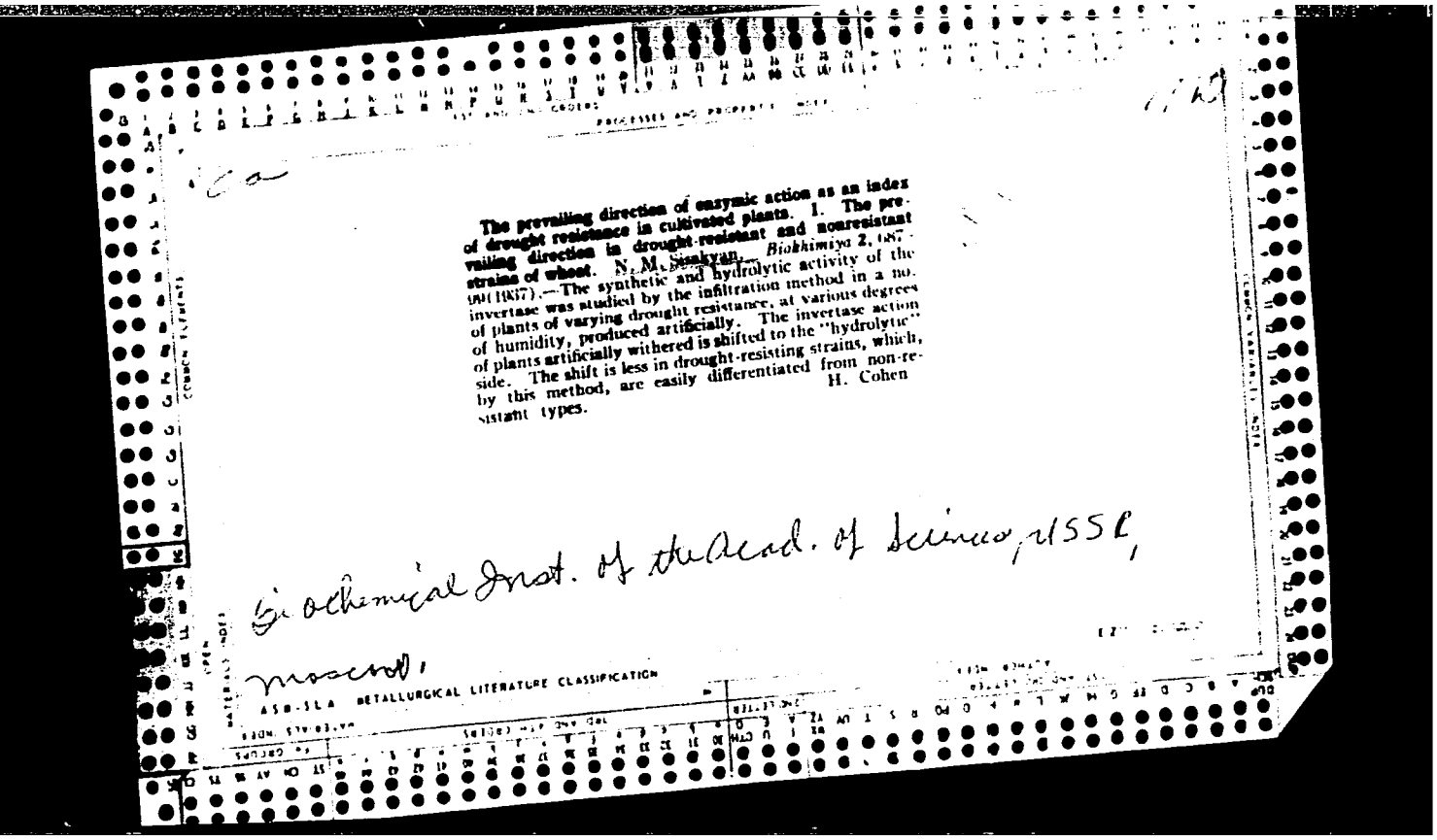
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Studies on the enzyme activity of the living plant cell, with respect to the vernalization of seeds. I. The effect of vernalization on the direction of invertase action. N. M. Sisakyan. *Biokhimiya* 2, 283–73(1937). In the leaves of vernalized plants the hydrolytic action of the invertase is greatly enhanced. This leads to a decrease in the amt. of sucrose and to a corresponding increase in the monosaccharide content. H. Cohen

Inst. of Biochemistry, Academy of Sciences, USSR, Moscow

A 5 0 . 5 L A METALLURGICAL LITERATURE CLASSIFICATION



The prevailing direction of enzymic action as an index of drought resistance in cultivated plants. I. The prevailing direction in drought-resistant and nonresistant strains of wheat. N. M. Sisakyan. *Biokhimiya* 2, 687-94 (1937).—The synthetic and hydrolytic activity of the invertase was studied by the infiltration method in a no. of plants of varying drought resistance, at various degrees of humidity, produced artificially. The invertase action of plants artificially withered is shifted to the "hydrolytic" side. The shift is less in drought-resisting strains, which, by this method, are easily differentiated from non-resistant types.

H. Cohen

Biochemical Inst. of the Acad. of Sciences, USSR, Moscow.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

11D

Dokl. AN SSSR,

Measurement of the oxidizing-reducing power of the living vegetable tissue. B. A. Rubin, N. M. Sisakian and O. T. Lutikova. *Compt. rend. acad. sci. U. R. S. S.* **15,** 495-8(1937)(in English).– Of a no. of plants studied the highest power of reducing the dehydro-form of ascorbic acid is possessed by the leaves of the cabbage (I) and those of *Hydrangea hortensia* (II). The leaves of *Cyclamen persicum* (III) and *Zea mais* (IV) are very inactive in this respect. In spite of the exceptionally high reducing power of ascorbic acid, the oxidation of the latter in living tissue proceeds very slowly, owing, to all appearances, to the presence therein of powerful protective systems. Under these circumstances, no oxidation can be produced except as a result of disturbing the equil. between the oxidized and reduced form of the vitamin in the tissue, as, for instance, by infiltration. The ratios of oxidizing to reducing power of I, II, III and IV are 2.0, 2.8, 5.0 and 1.3, resp.
W. J. Peterson

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

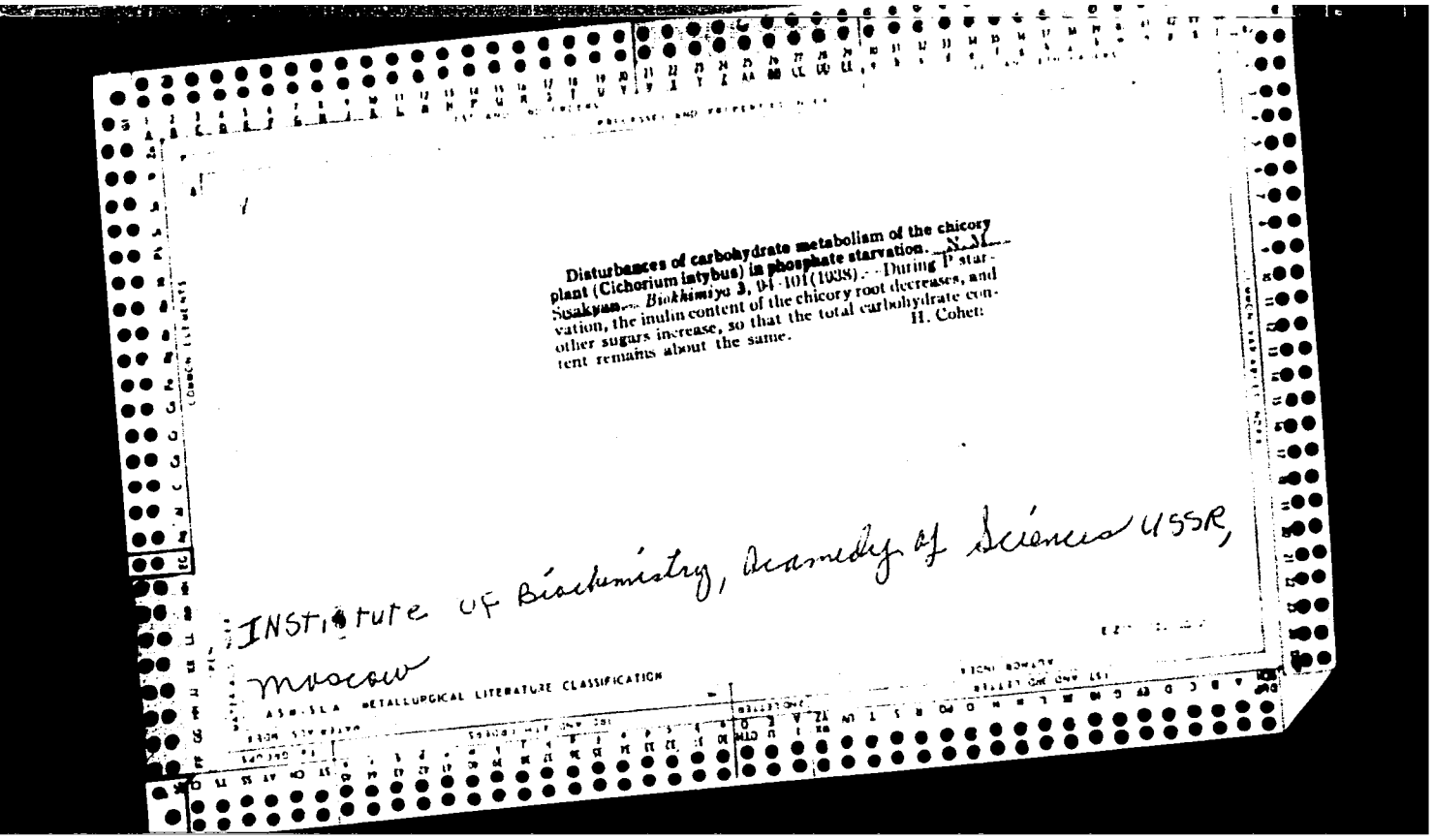
PROCESSES AND PROPERTIES INDEX

Effect of the forms of nutritional nitrogen and of phosphorus supply on the formation of carbohydrates and nitrogenous compounds in the sugar beet. N. M. [illegible] *Bull. acad. sci. U. R. S. S., Classe sci. math. nat., Sér. biol.* 1938, [illegible] English, 410-20. Under ammonia nutrition, the sugar beet yields a higher content of reducing sugars than under nitrate nutrition. The amt. of "nonprotein" N is lower under normal P nutrition. With ammonia as the N source, the sugar beet is much more affected by a P deficiency than is the case when nitrate serves as the medium. [illegible]

H. Priestley

Iz. Ak. Nauk SSSR, Ser. Biol.

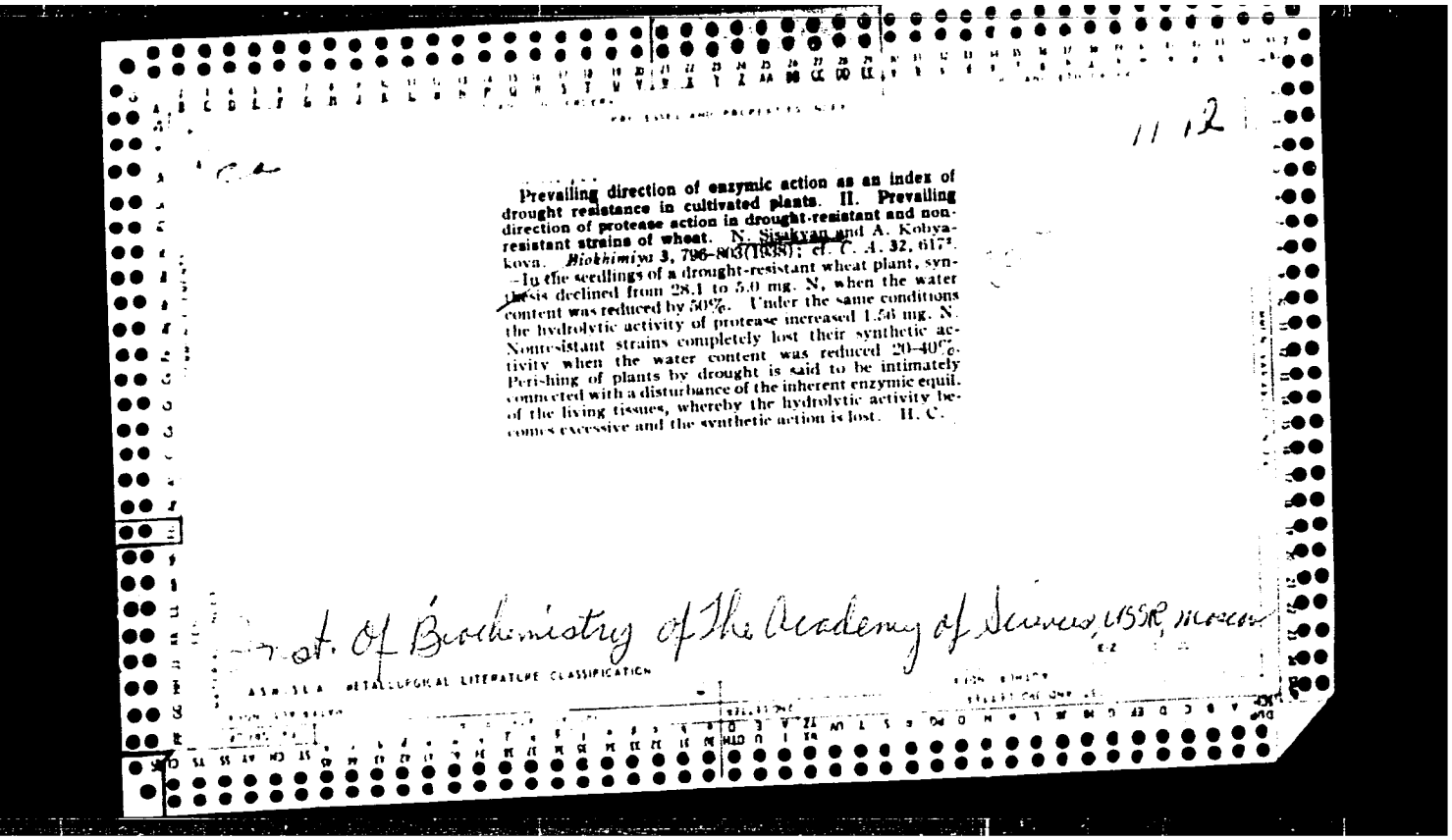
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Disturbances of carbohydrate metabolism of the chicory plant (Cichorium intybus) in phosphate starvation. N. N. Susakyan. *Biokhimiya* 3, 91-101 (1938).—During P starvation, the inulin content of the chicory root decreases, and other sugars increase, so that the total carbohydrate content remains about the same. H. Cohen

Institute of Biochemistry, Academy of Sciences USSR, Moscow

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

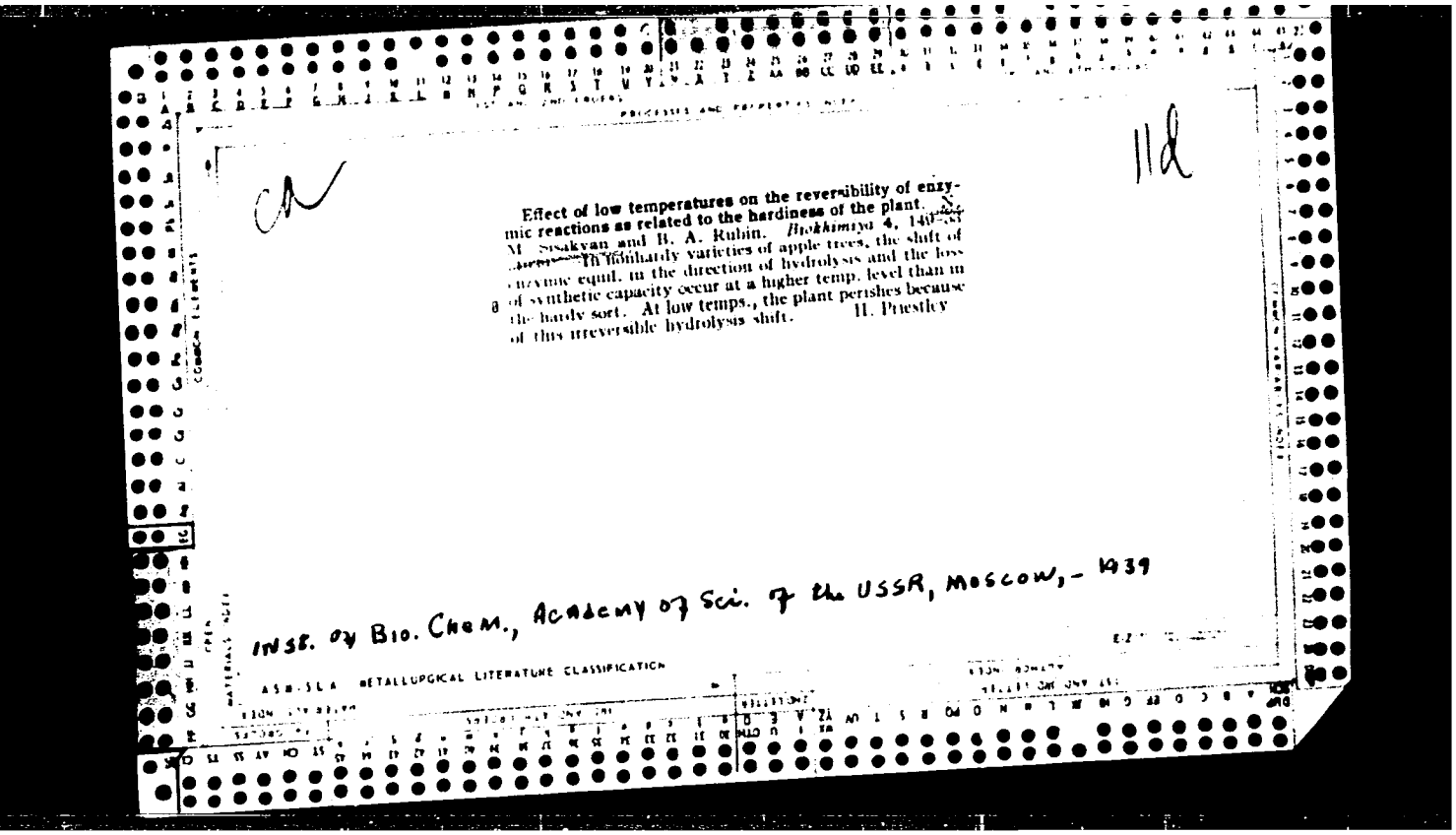


11 12

Prevailing direction of enzymic action as an index of drought resistance in cultivated plants. II. Prevailing direction of protease action in drought-resistant and non-resistant strains of wheat. N. Sisakyan and A. Kobyakova. *Biokhimiya* **3**, 796–803(1938); cf. *C. A.* **32**, 617⁹. —In the seedlings of a drought-resistant wheat plant, synthesis declined from 28.1 to 5.0 mg. N, when the water content was reduced by 50%. Under the same conditions the hydrolytic activity of protease increased 1.56 mg. N. Non-resistant strains completely lost their synthetic activity when the water content was reduced 20–40%. Perishing of plants by drought is said to be intimately connected with a disturbance of the inherent enzymic equil. of the living tissues, whereby the hydrolytic activity becomes excessive and the synthetic action is lost. H. C.

Inst. of Biochemistry of The Academy of Sciences, USSR, Moscow

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



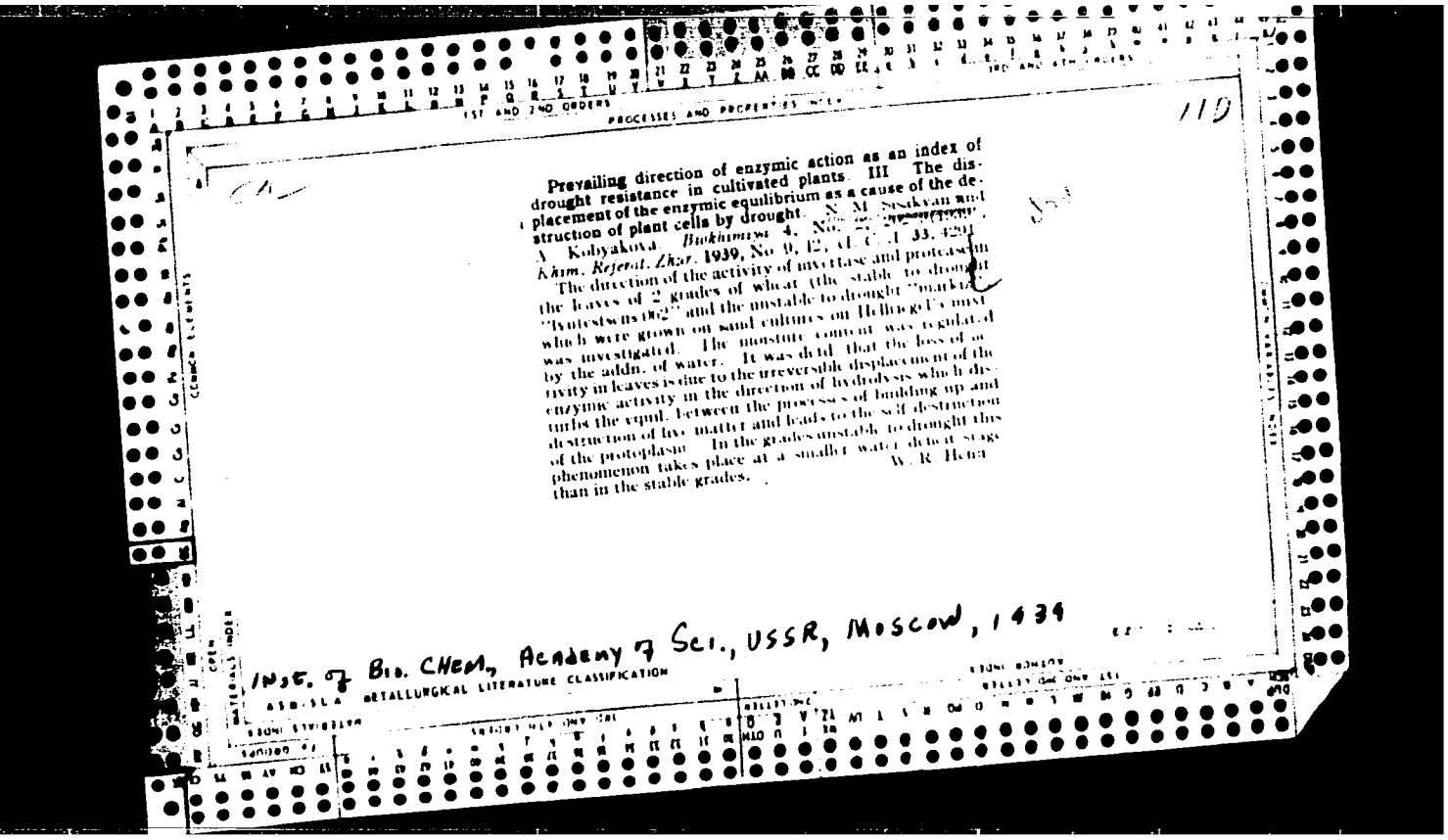
Effect of low temperatures on the reversibility of enzymic reactions as related to the hardiness of the plant. M. Sisakyan and B. A. Rubin. *Biokhimiya* 4, 140-53 (1939). In hardy varieties of apple trees, the shift of enzyme equil. in the direction of hydrolysis and the loss of synthetic capacity occur at a higher temp. level than in the hardy sort. At low temps., the plant perishes because of this irreversible hydrolysis shift. H. Priestley

CA

11d

Inst. of Bio. Chem., Academy of Sci. of the USSR, Moscow, - 1939

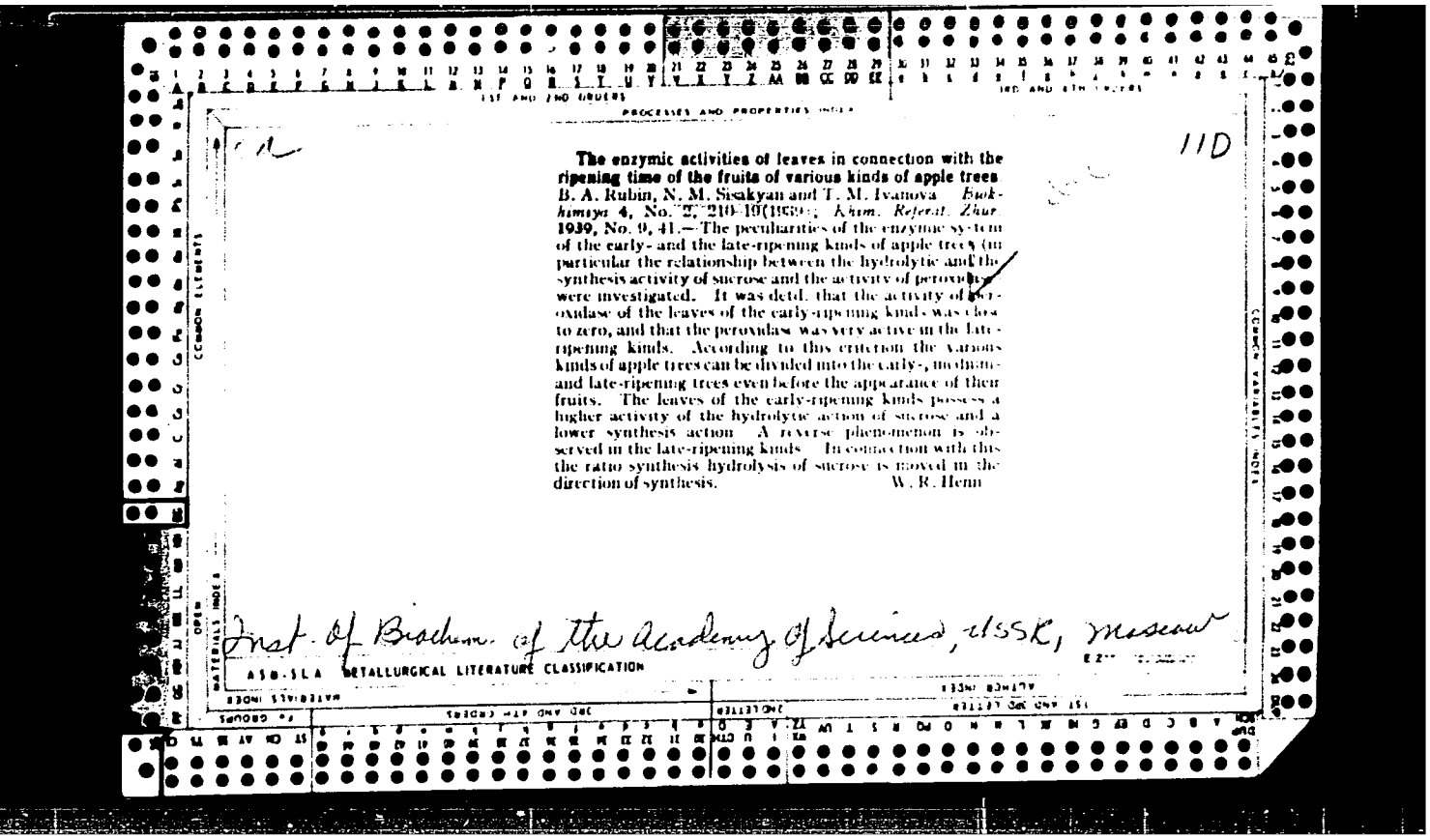
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Prevailing direction of enzymic action as an index of drought resistance in cultivated plants. III The displacement of the enzymic equilibrium as a cause of the destruction of plant cells by drought. N. M. Sisakyan and A. Kolyakova. *Biokhimiya* 4, No. [illegible]. *Khim. Referat. Zhur.* 1939, No 9, 12; cf. C. A. 33, 4201.

The direction of the activity of invertase and proteases in the leaves of 2 grades of wheat (the stable to drought "Lutescens 062" and the unstable to drought "Marki which were grown on sand cultures on Hellriegel's mixt was investigated. The moisture content was regulated by the addn. of water. It was found that the loss of activity in leaves is due to the irreversible displacement of the enzymic activity in the direction of hydrolysis which disturbs the equil. between the processes of building up and destruction of live matter and leads to the self destruction of the protoplasm. In the grades unstable to drought this phenomenon takes place at a smaller water deficit stage than in the stable grades. W. R. Henn

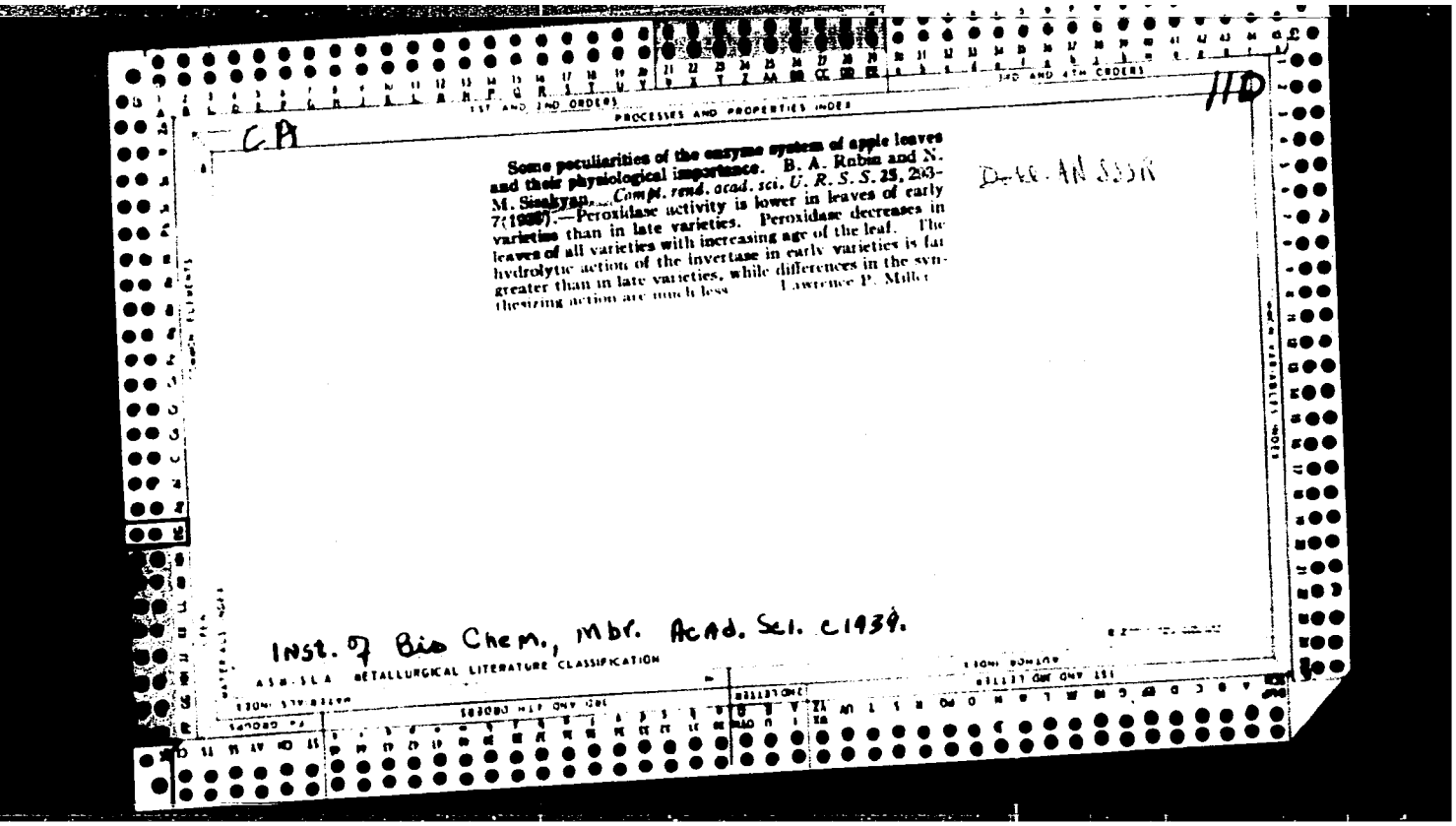
Inst. of Bio. Chem., Academy of Sci., USSR, Moscow, 1434



The enzymic activities of leaves in connection with the ripening time of the fruits of various kinds of apple trees B. A. Rubin, N. M. Sisakyan and T. M. Ivanova *Biokhimiya* 4, No. 2, 210-19(1939); *Khim. Referat. Zhur.* 1939, No. 9, 41.—The peculiarities of the enzymic system of the early- and the late-ripening kinds of apple trees (in particular the relationship between the hydrolytic and the synthesis activity of sucrose and the activity of peroxidase) were investigated. It was detd. that the activity of peroxidase of the leaves of the early-ripening kinds was close to zero, and that the peroxidase was very active in the late-ripening kinds. According to this criterion the various kinds of apple trees can be divided into the early-, medium- and late-ripening trees even before the appearance of their fruits. The leaves of the early-ripening kinds possess a higher activity of the hydrolytic action of sucrose and a lower synthesis action. A reverse phenomenon is observed in the late-ripening kinds. In connection with this the ratio synthesis: hydrolysis of sucrose is moved in the direction of synthesis. W. R. Henn

11D

Inst. of Biochem. of the Academy of Sciences, USSR, Moscow



CA

Some peculiarities of the enzyme system of apple leaves and their physiological importance. B. A. Rubin and N. M. Sisakyan. *Compt. rend. acad. sci. U. R. S. S.* 25, 263-7(1939).—Peroxidase activity is lower in leaves of early varieties than in late varieties. Peroxidase decreases in leaves of all varieties with increasing age of the leaf. The hydrolytic action of the invertase in early varieties is far greater than in late varieties, while differences in the synthesizing action are much less. Lawrence P. Miller

Dept. AN SSSR

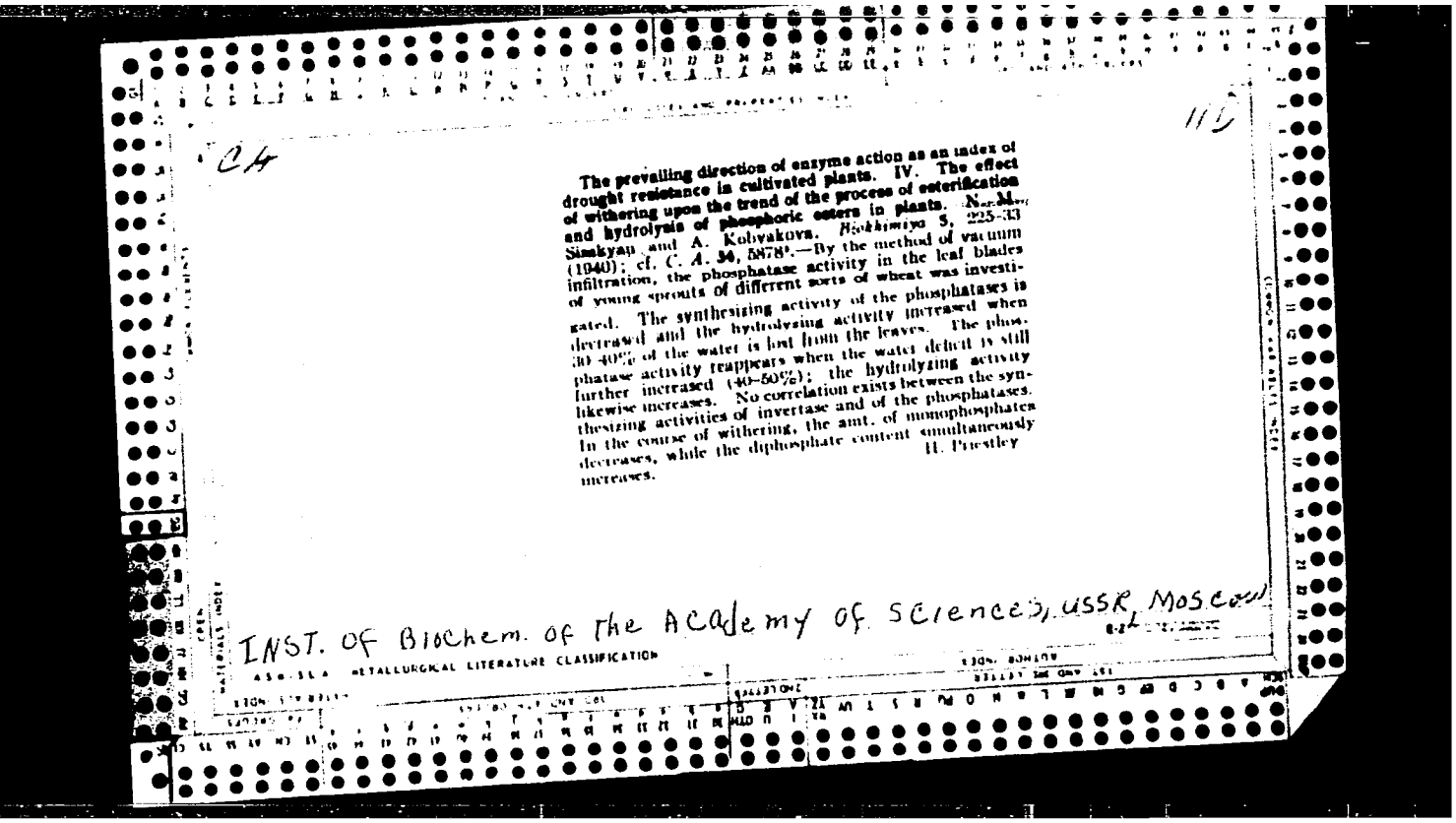
Inst. of Bio Chem., Mbr. Acad. Sci. 1939.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

11D

Influence of salts on enzymic activity in a living cell under low-temperature conditions. N. M. Sisakyan and B. A. Rubin. *Compt. rend. acad. sci.* U. R. S. S. 25, 301 (1939); cf. C. A. 34, 1710[8]. In a nonhardy variety of apple in which the invertase of the leaves had been found to lose its synthesizing power at 0° or less, the introduction of KCl into the leaves permitted invertase as well as protease to retain their synthesizing capacity at quite a high level at temps. below 0°. A similar shift in the direction of synthesis was also produced by KCl with leaves of a hardy variety and with strawberry leaves. Infiltration of NaCl or $CaCl_2$ greatly depressed the synthesizing action of invertase. Lawrence P. Miller



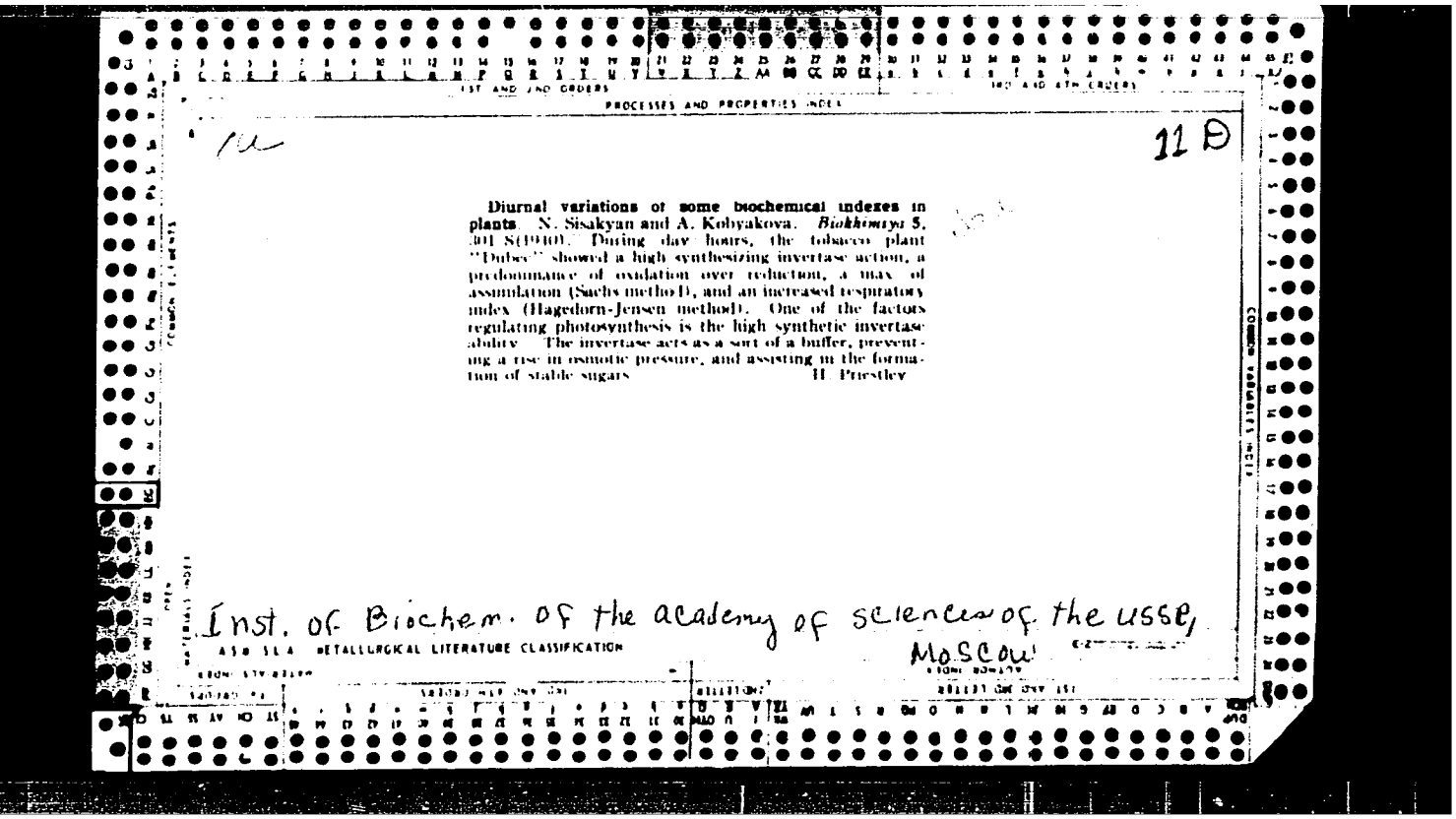
C4

IIC

The prevailing direction of enzyme action as an index of drought resistance in cultivated plants. IV. The effect of withering upon the trend of the process of esterification and hydrolysis of phosphoric esters in plants. N. M. Sisakyan and A. Kolyakova. *Biokhimiya* 5, 225–33 (1940); cf. *C. A.* 34, 5878⁹.—By the method of vacuum infiltration, the phosphatase activity in the leaf blades of young sprouts of different sorts of wheat was investigated. The synthesizing activity of the phosphatases is decreased and the hydrolysing activity increased when 30–40% of the water is lost from the leaves. The phosphatase activity reappears when the water deficit is still further increased (40–50%); the hydrolyzing activity likewise increases. No correlation exists between the synthesizing activities of invertase and of the phosphatases. In the course of withering, the amt. of monophosphates decreases, while the diphosphate content simultaneously increases. H. Priestley

INST. of Biochem. of the Academy of Sciences, USSR, Moscow

METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROPERTIES INDEX

11 D

Diurnal variations of some biochemical indexes in plants. N. Sisakyan and A. Kobyakova. *Biokhimiya* 5, 301 S(1940). During day hours, the tobacco plant "Dubec" showed a high synthesizing invertase action, a predominance of oxidation over reduction, a max. of assimilation (Sachs method), and an increased respiratory index (Hagedorn-Jensen method). One of the factors regulating photosynthesis is the high synthetic invertase ability. The invertase acts as a sort of a buffer, preventing a rise in osmotic pressure, and assisting in the formation of stable sugars. H. Priestley

Inst. of Biochem. of the academy of sciences of the USSR, Moscow

A 58 SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

110

20

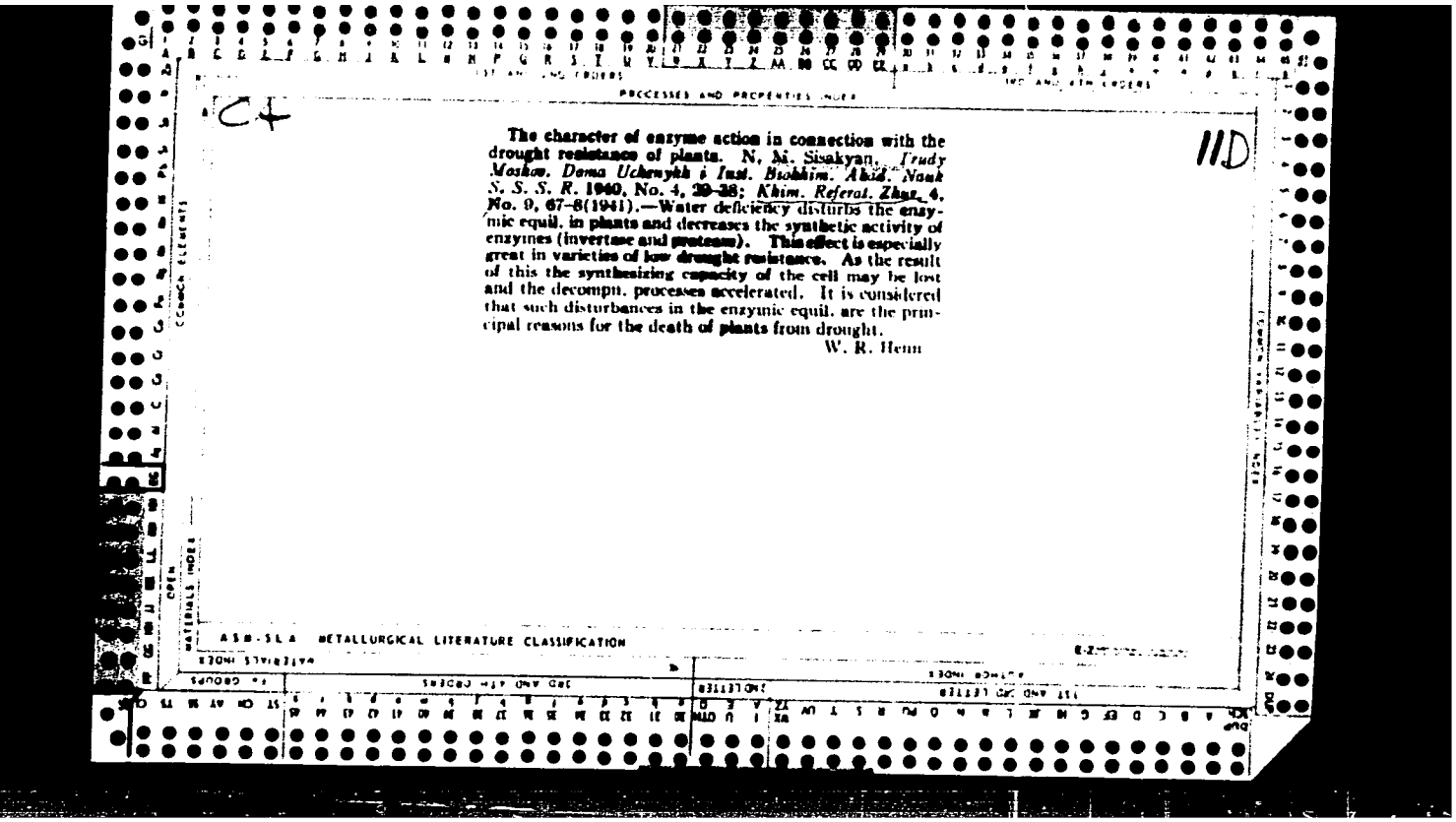
Dokl. AN SSSR,

Degree of water saturation as a factor regulating the effect of invertase in plants. N. M. Sisakyan and A. Kobyakova. *Compt. rend. acad. sci. U. R. S. S.* 28, 820 2(1940)(in German).--The leaf blades of 10-day-old embryos of 2 wheat varieties were satd. with H_2O by immersion for 40 min. After removal of part of the H_2O they were subjected, after 1 hr., to infiltration according to the method of Kursanov. The results (tabulated) show that with a normal H_2O content (88.8%) the plant cell develops a high enzymic activity. Strong satn. of the cell completely stops synthesis. Water loss of the plant below the normal H_2O content reduces the synthesizing power of invertase, while hydrolysis undergoes no important changes. These results agree with other observations on the effect of excessive humidity, leading to a reduced assimilative power in higher plants. 10 references.

A. H. Krappe

Biochem. Inst. USSR Acad of Scholars. -14 ...

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



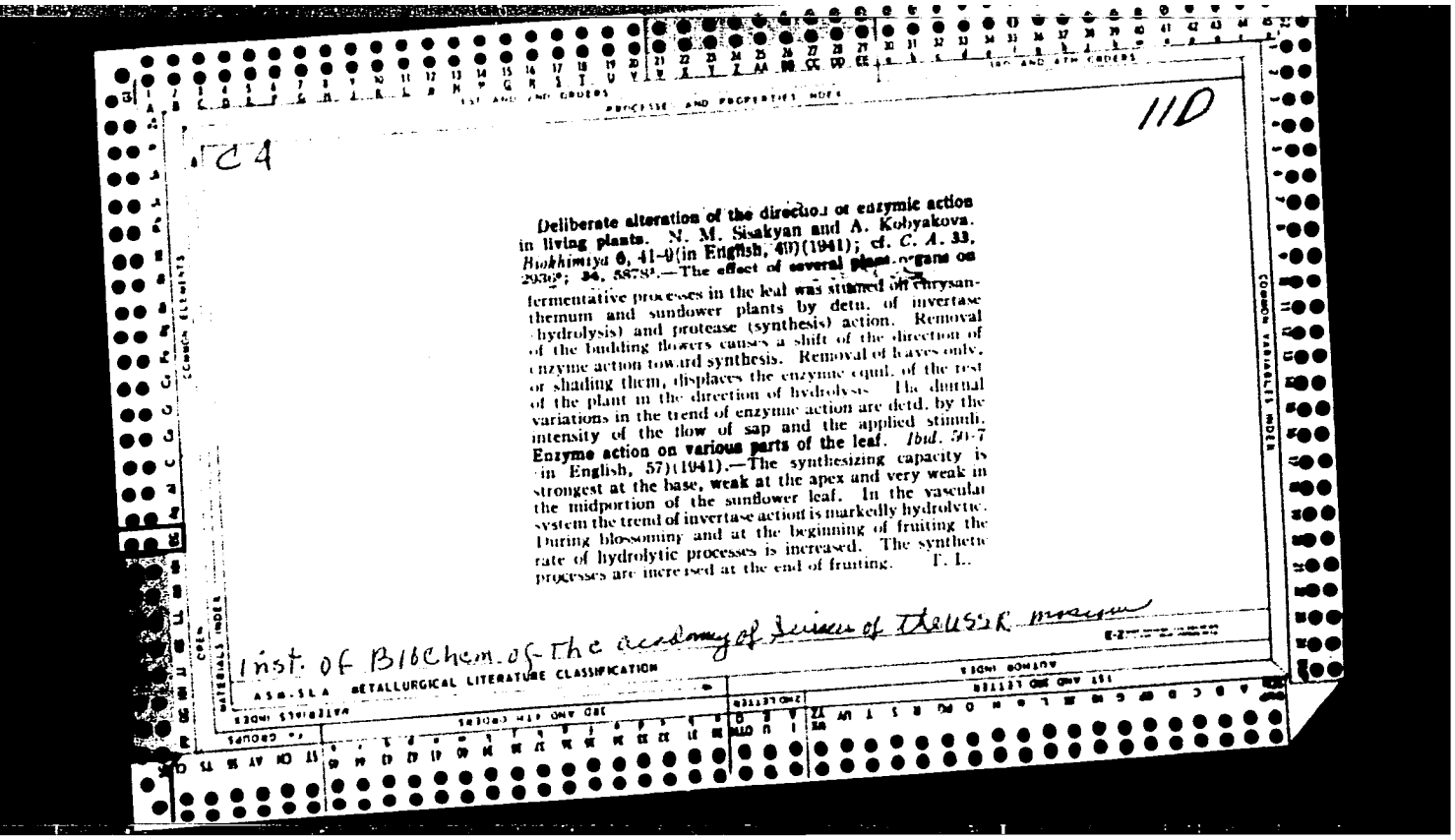
C+

IID

The character of enzyme action in connection with the drought resistance of plants. N. Ai. Sisakyan. *Trudy Moskov. Doma Uchenykh i Inst. Biokhim. Akad. Nauk S. S. S. R.* 1940, No. 4, 29-38; *Khim. Referat. Zhur.* 4, No. 9, 67-8(1941).—Water deficiency disturbs the enzymic equil. in plants and decreases the synthetic activity of enzymes (invertase and proteases). This effect is especially great in varieties of low drought resistance. As the result of this the synthesizing capacity of the cell may be lost and the decompn. processes accelerated. It is considered that such disturbances in the enzymic equil. are the principal reasons for the death of plants from drought.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



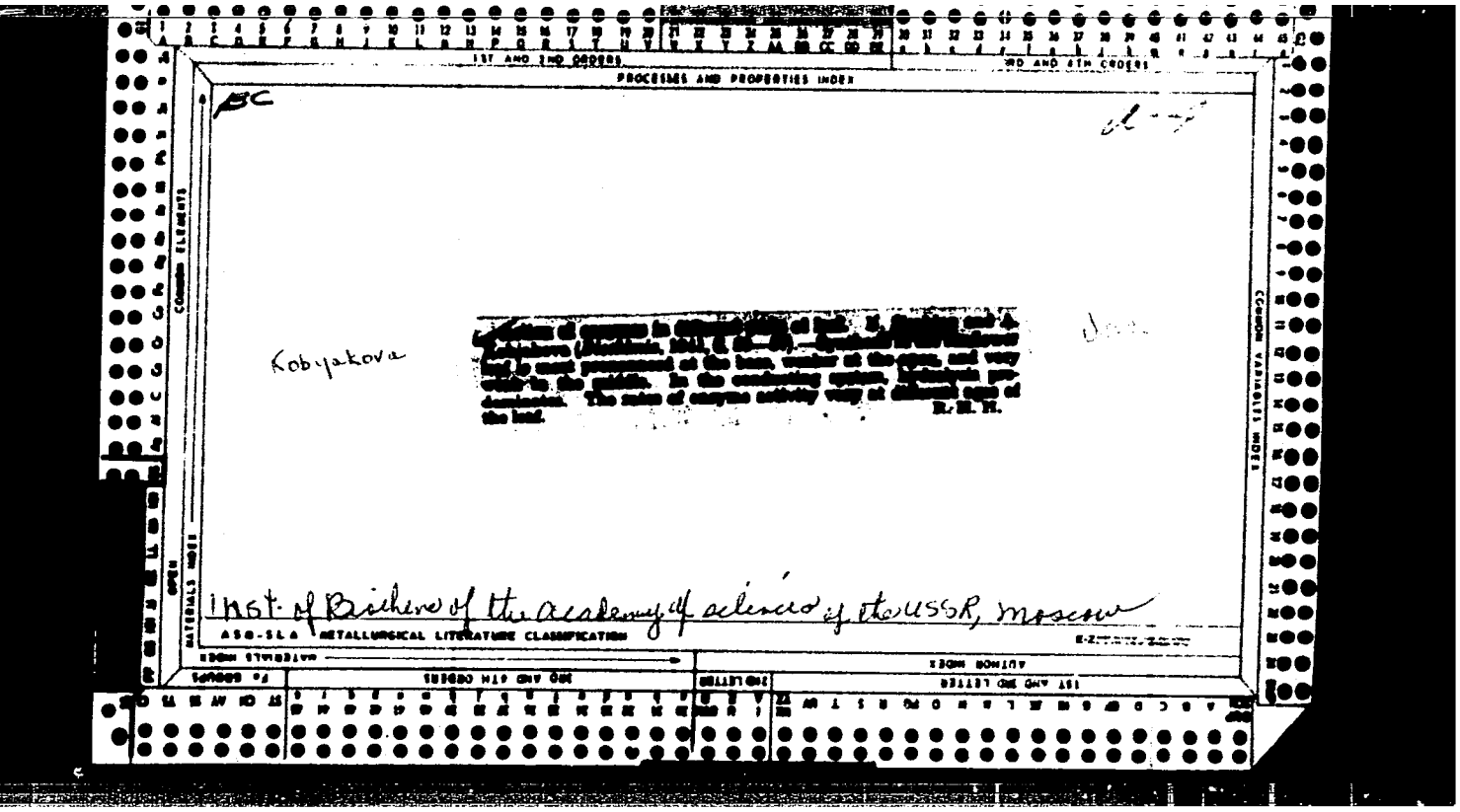
IIC4

IID

Deliberate alteration of the direction of enzymic action in living plants. N. M. Sisakyan and A. Kolyakova. *Biokhimiya* **6**, 41–9(in English, 49)(1941); cf. *C. A.* **33**, 2930⁹; **34**, 5878⁵.—The effect of several plant organs on fermentative processes in the leaf was studied on chrysanthemum and sunflower plants by detn. of invertase (hydrolysis) and protease (synthesis) action. Removal of the budding flowers causes a shift of the direction of enzyme action toward synthesis. Removal of leaves only, or shading them, displaces the enzyme equil. of the rest of the plant in the direction of hydrolysis. The diurnal variations in the trend of enzymic action are detd. by the intensity of the flow of sap and the applied stimuli. **Enzyme action on various parts of the leaf.** *Ibid.* 50–7 (in English, 57)(1941).—The synthesizing capacity is strongest at the base, weak at the apex and very weak in the midportion of the sunflower leaf. In the vascular system the trend of invertase action is markedly hydrolytic. During blossoming and at the beginning of fruiting the rate of hydrolytic processes is increased. The synthetic processes are increased at the end of fruiting. T. L.

Inst. of Biochem. of the Academy of Sciences of the U.S.S.R. Moscow

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

BC

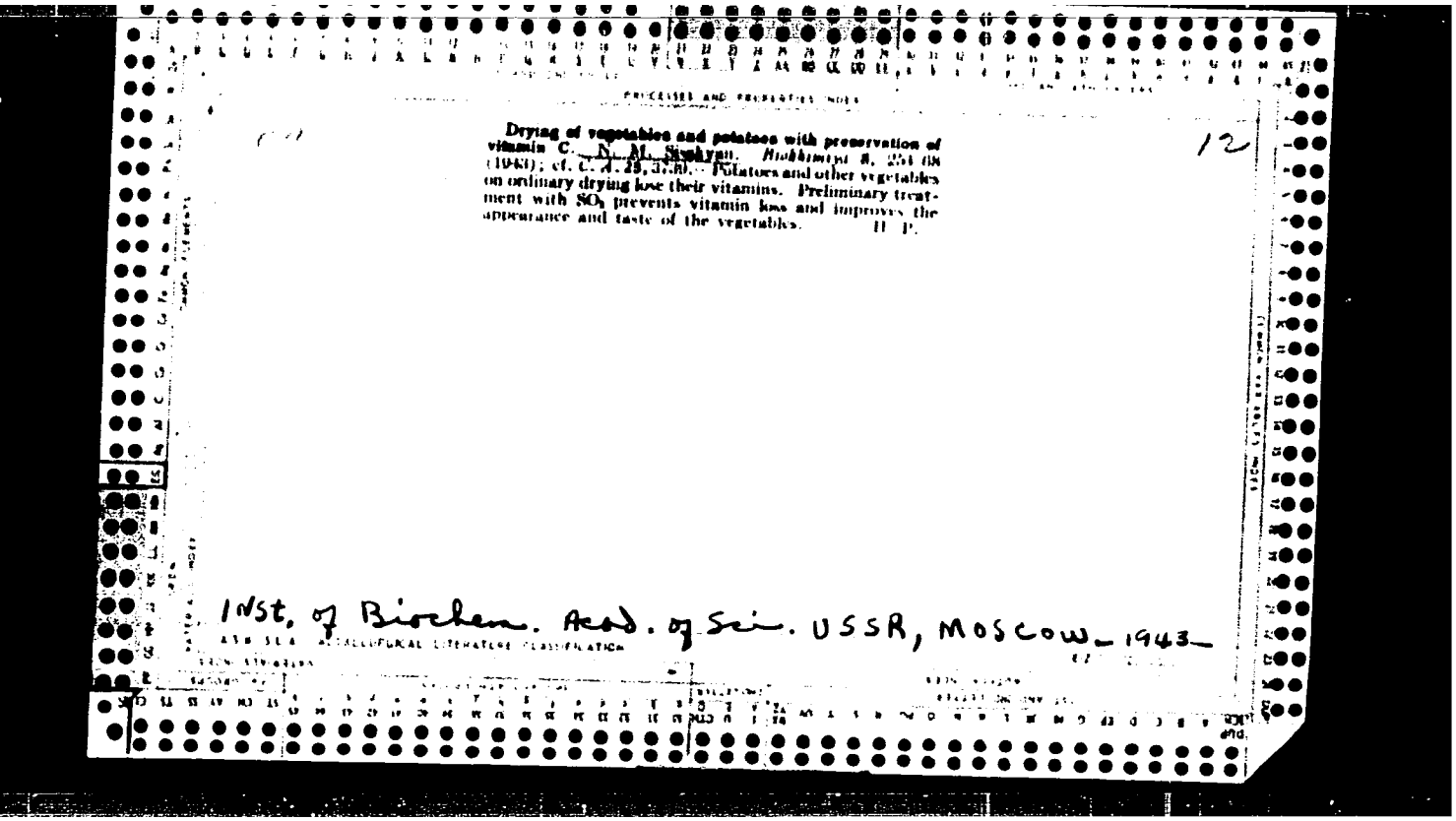
A-4

Prevailing direction of enzyme action as index of drought-resistance in cultivated plants. V. Diurnal rhythm of trend of enzyme action in wilting. N. [illegible] and A. Kobjakova (Biochimia, 1941, 6, 100—110).—Experiments with a drought-resistant and a non-resistant type of wheat grown on soil and allowed to wither until loss of turgor at the stage of stalk formation occurred show that, under normal conditions of vegetation, the trend of enzyme action is subject to a diurnal rhythm which is disturbed by alterations in the conditions (particularly by water deficiency). Under identical conditions of dehydration, resistant wheat maintains, and non-resistant wheat loses, the periodicity in the trend of enzyme action.

W. McC.

Inst. of Biochem. Academy of Sciences of the USSR, Moscow

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



PROCESSES AND PROCESSING NOTES

Drying of vegetables and potatoes with preservation of vitamin C. N. M. Sisakyan. *Biokhimiya* 8, 251-68 (1943); cf. C. A. 38, 3540. Potatoes and other vegetables on ordinary drying lose their vitamins. Preliminary treatment with SO_2 prevents vitamin loss and improves the appearance and taste of the vegetables. 11 P.

12

Inst. of Biochem. Acad. of Sci. USSR, Moscow - 1943

AGR SCI AGRICULTURAL LITERATURE CLASSIFICATION

CA

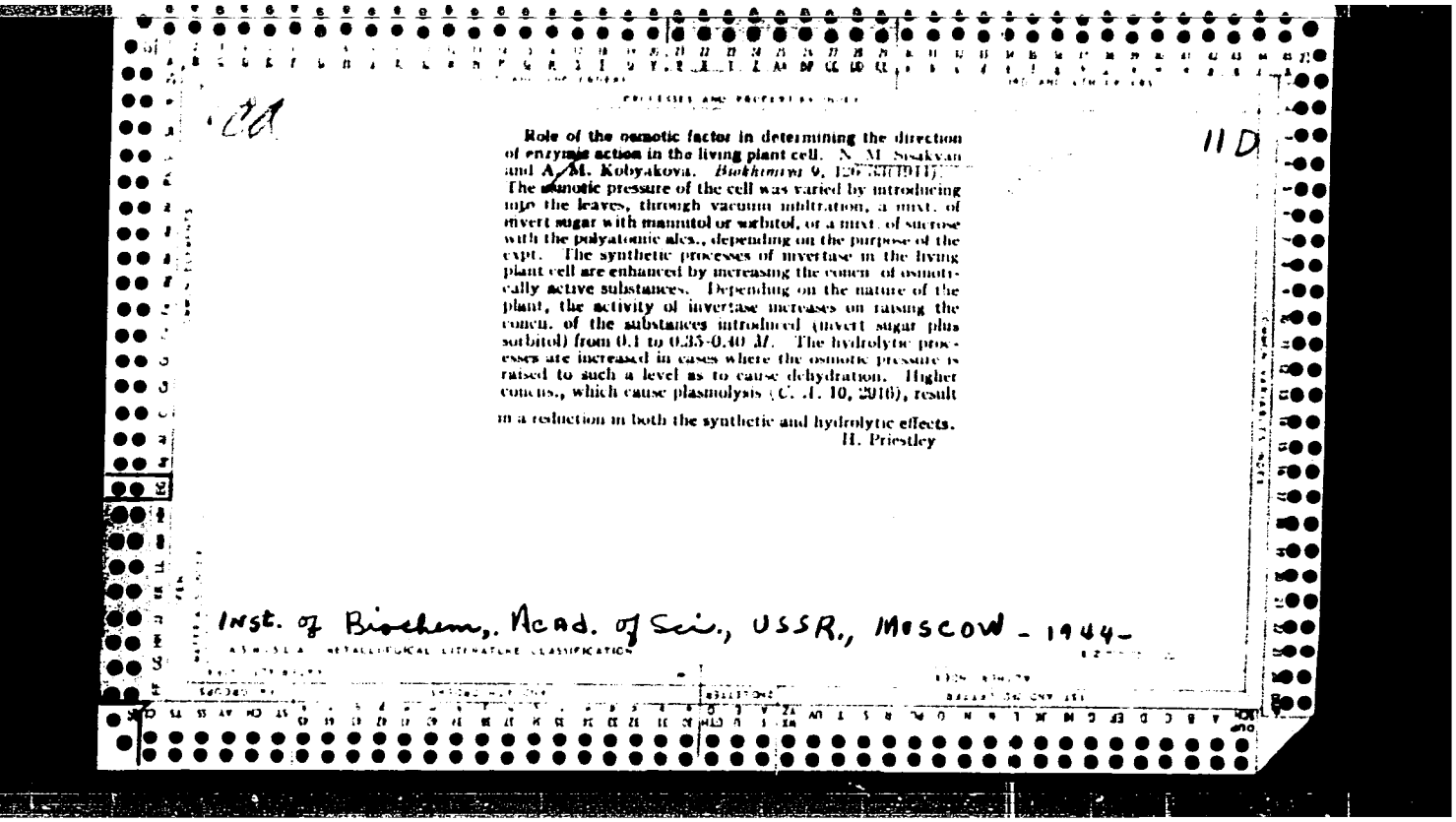
11D

PROCESSES AND PROPERTIES INDEX

Seasonal variations of the direction of invertase action and their bearing on the accumulation of sugar in the sugar beet. N. M. Sisakyan and N. I. Nuzhdin. *Biokhimiya* 9, 104-12(1944); cf. C. A. 38, 7831[9].—By the method of vacuum infiltration it has been detd. that the synthetic action of invertase surpasses the hydrolytic action during the period of intense form-producing processes. When the latter slow down, and sucrose accumulates in the root, the hydrolytic effect of the leaf invertase begins to predominate over the synthetic. This occurs at the end of June and continues until the close of the vegetating period. A higher sucrose content in the beet root signifies that a higher hydrolytic invertase level existed in the leaves during the sugar accumulation. H. Priestley

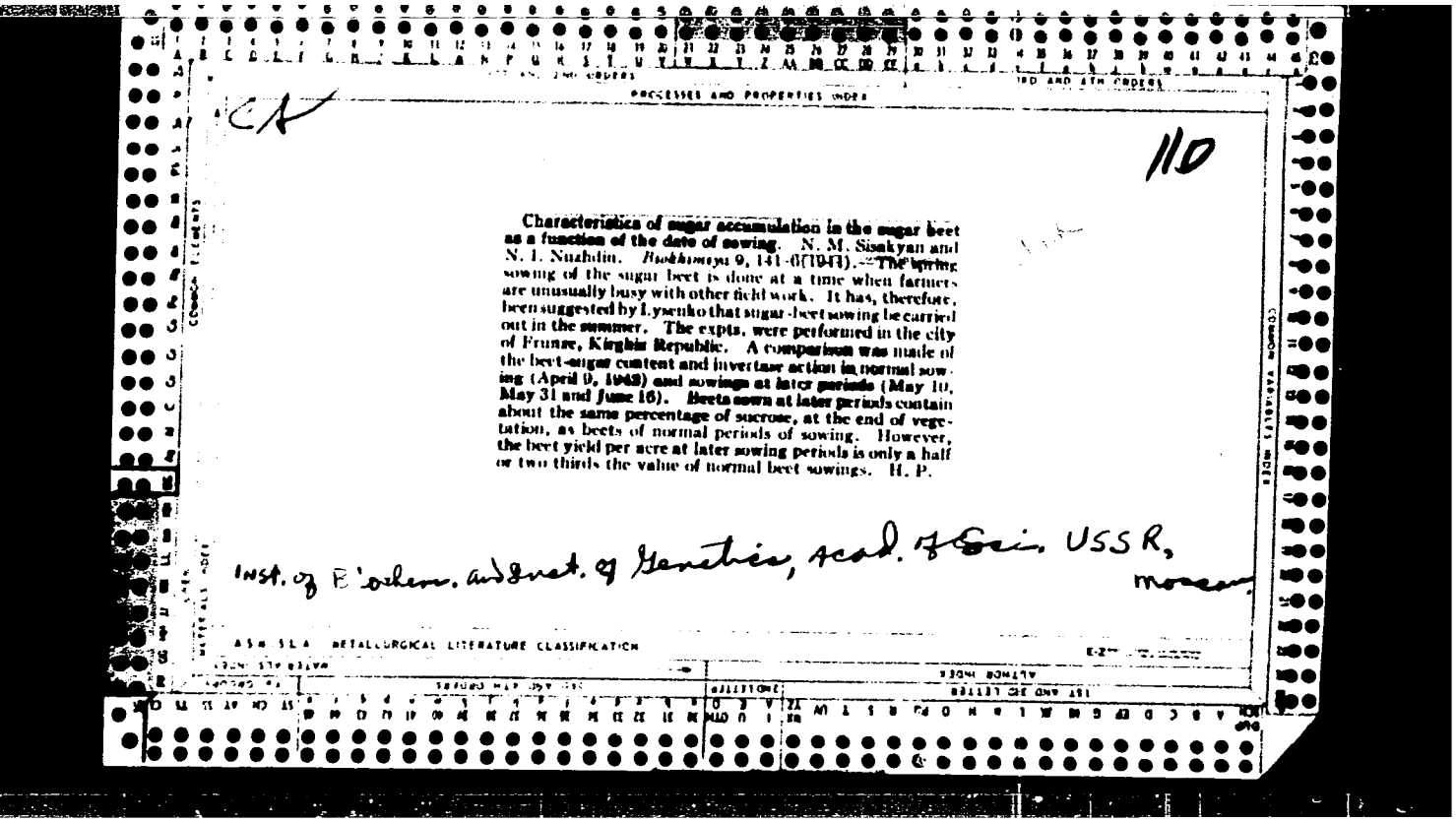
Inst. of Biochem., Inst. of Genetics, Acad. of Sci. USSR, Moscow.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Role of the osmotic factor in determining the direction of enzymic action in the living plant cell. N. M. Sisakyan and A. M. Kobyakova. *Biokhimiya* 9, [illegible]. The osmotic pressure of the cell was varied by introducing into the leaves, through vacuum infiltration, a mixt. of invert sugar with mannitol or sorbitol, or a mixt. of sucrose with the polyatomic alcs., depending on the purpose of the expt. The synthetic processes of invertase in the living plant cell are enhanced by increasing the concn. of osmotically active substances. Depending on the nature of the plant, the activity of invertase increases on raising the concn. of the substances introduced (invert sugar plus sorbitol) from 0.1 to 0.35-0.40 *M*. The hydrolytic processes are increased in cases where the osmotic pressure is raised to such a level as to cause dehydration. Higher concns., which cause plasmolysis (*C. A.* 10, 2016), result in a reduction in both the synthetic and hydrolytic effects.
H. Priestley

Inst. of Biochem., Acad. of Sci., USSR., Moscow - 1944-



PROCESSES AND PROPERTIES INDEX

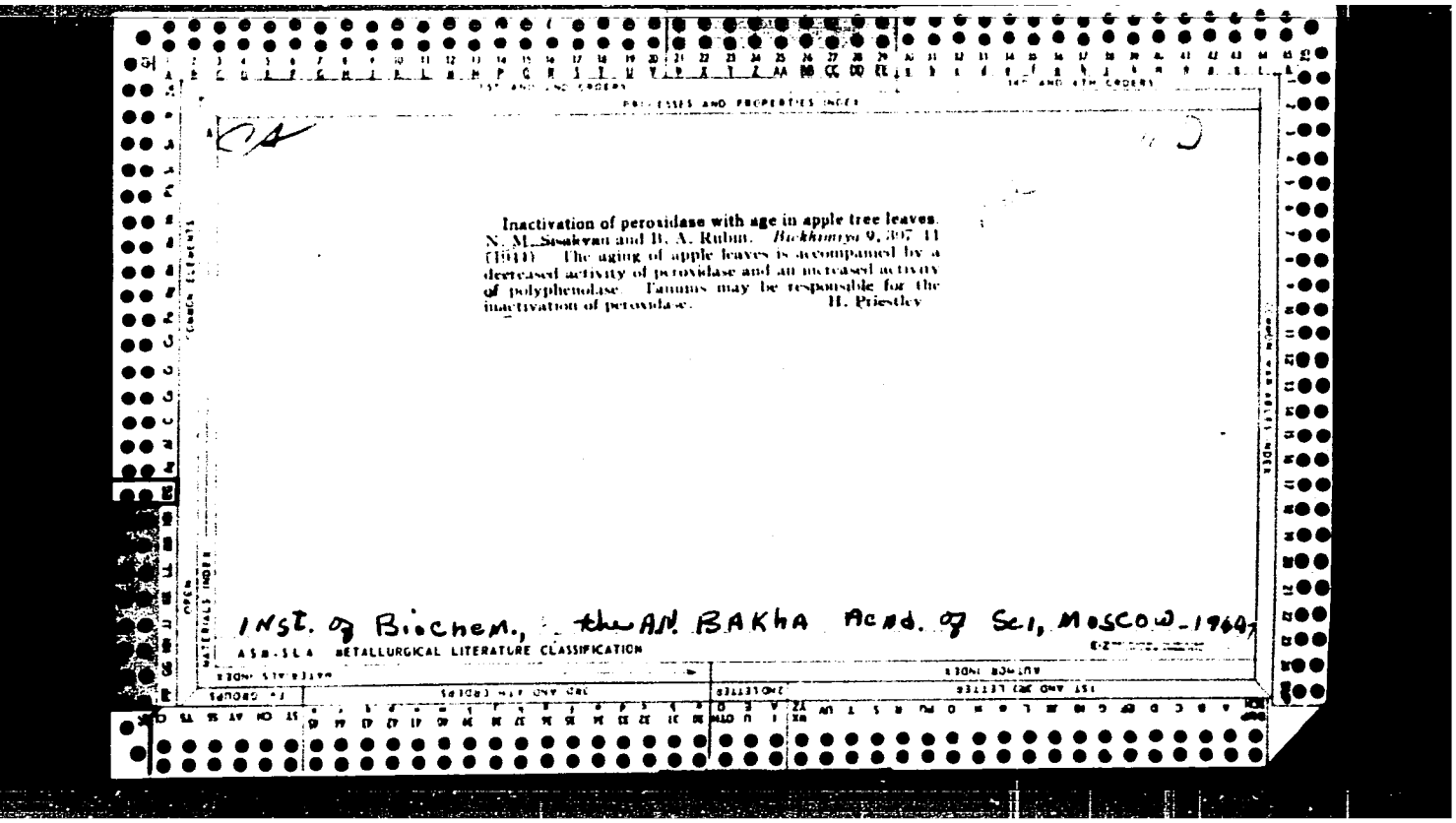
CA

110

Characteristics of sugar accumulation in the sugar beet as a function of the date of sowing. N. M. Sisakyan and N. I. Nuzhdin. *Biokhimiya* 9, 141-6(1944).—The spring sowing of the sugar beet is done at a time when farmers are unusually busy with other field work. It has, therefore, been suggested by Lysenko that sugar-beet sowing be carried out in the summer. The expts. were performed in the city of Frunze, Kirghiz Republic. A comparison was made of the beet-sugar content and invertase action in normal sowing (April 9, 1943) and sowings at later periods (May 10, May 31 and June 16). Beets sown at later periods contain about the same percentage of sucrose, at the end of vegetation, as beets of normal periods of sowing. However, the beet yield per acre at later sowing periods is only a half or two thirds the value of normal beet sowings. H. P.

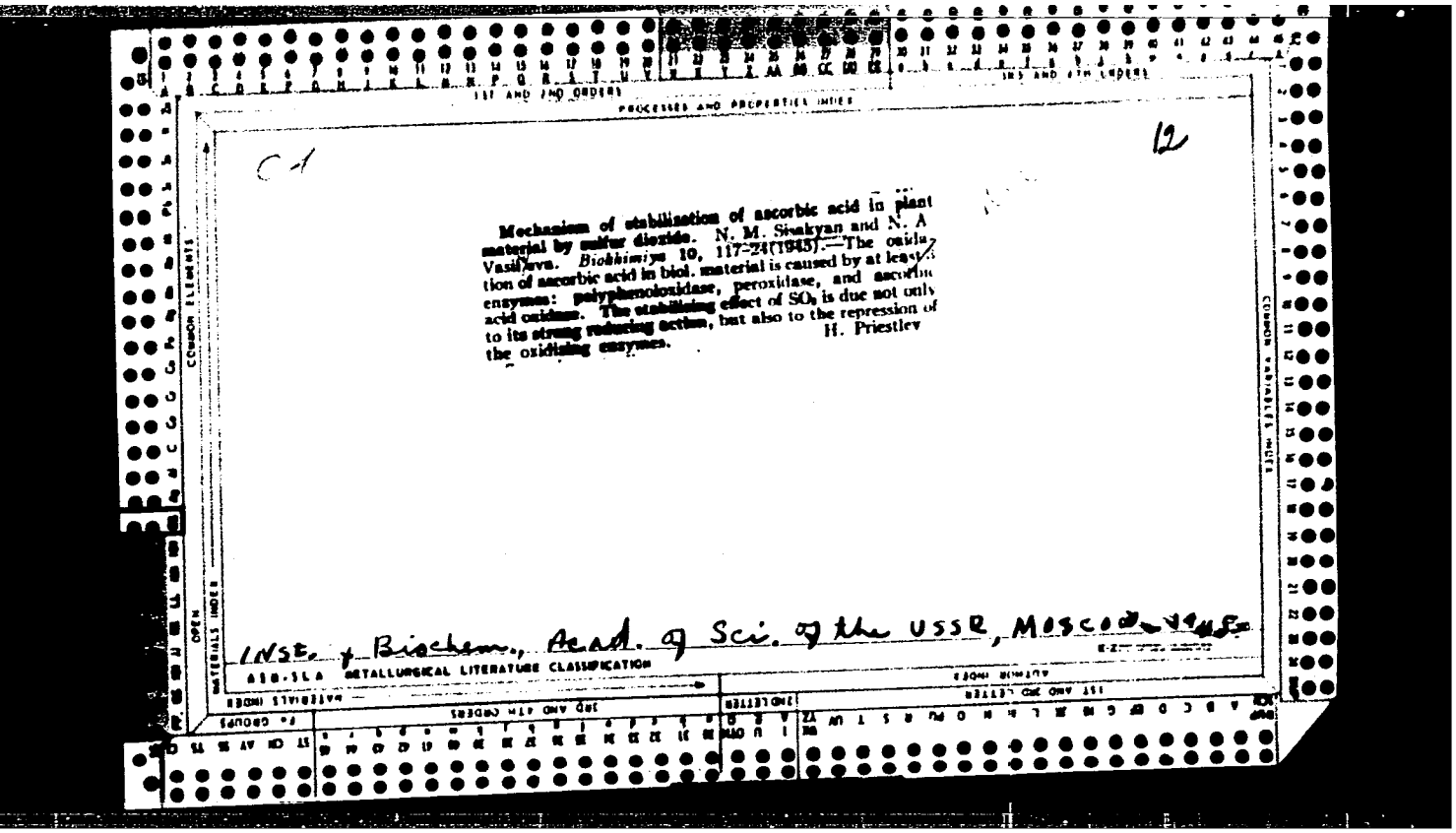
Inst. of Biochem. and Biol. of Genetics, Acad. of Sci. USSR, Moscow

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Inactivation of peroxidase with age in apple tree leaves. N. M. Sisakyan and B. A. Rubin. *Biokhimiya* 9, 307-11 (1944). The aging of apple leaves is accompanied by a decreased activity of peroxidase and an increased activity of polyphenolase. Tannins may be responsible for the inactivation of peroxidase. H. Priestley

INST. of Biochem., the AN BAKhA Acad. of Sci, Moscow-1964

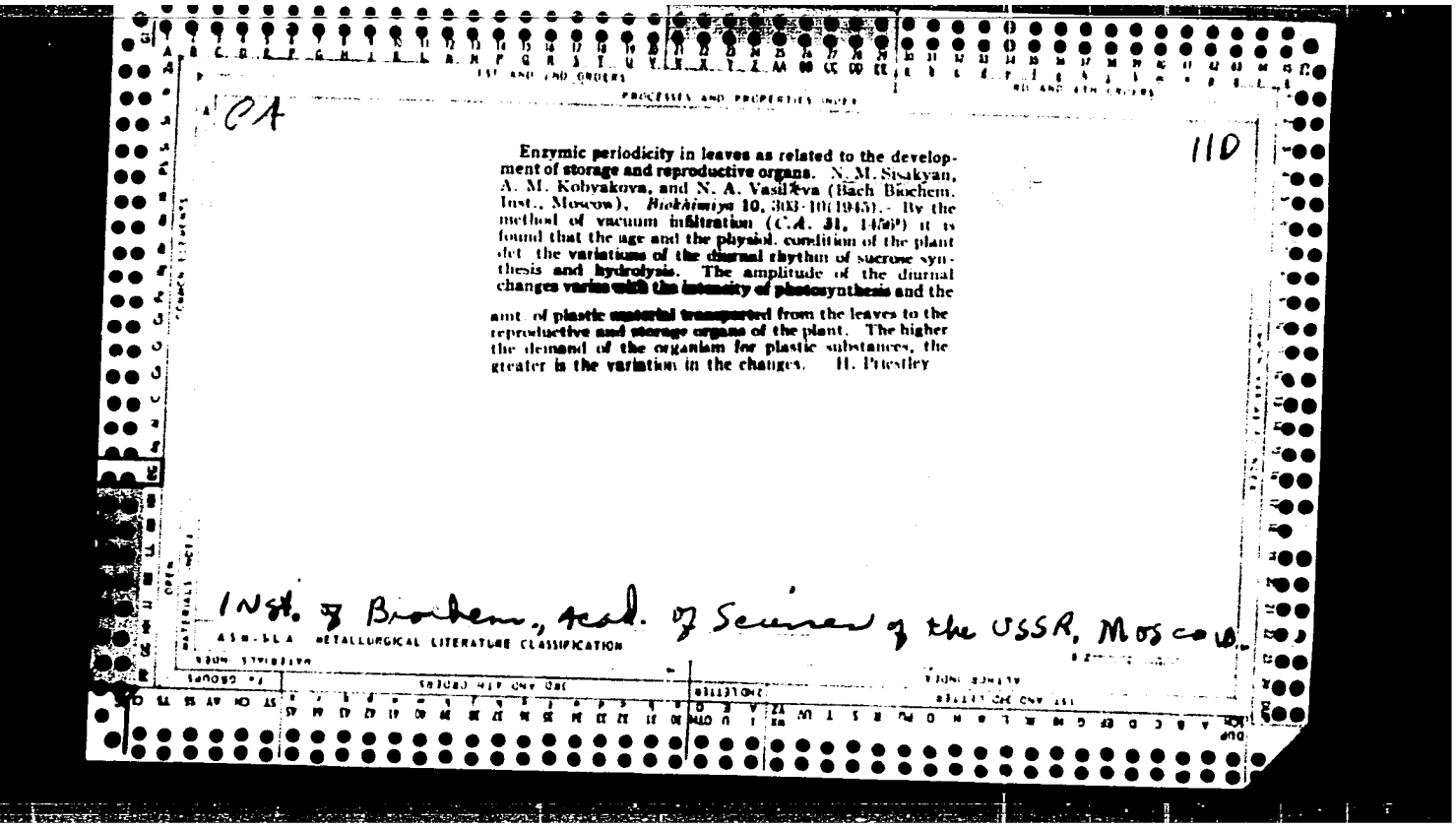


C-1

12

Mechanism of stabilization of ascorbic acid in plant material by sulfur dioxide. N. M. Sisakyan and N. A. Vasil'eva. *Biokhimiya* 10, 117-24(1945).—The oxidation of ascorbic acid in biol. material is caused by at least enzymes: polyphenoloxidase, peroxidase, and ascorbic acid oxidase. The stabilizing effect of SO_2 is due not only to its strong reducing action, but also to the repression of the oxidizing enzymes.
H. Priestley

Inst. of Biochem., Acad. of Sci. of the USSR, Moscow



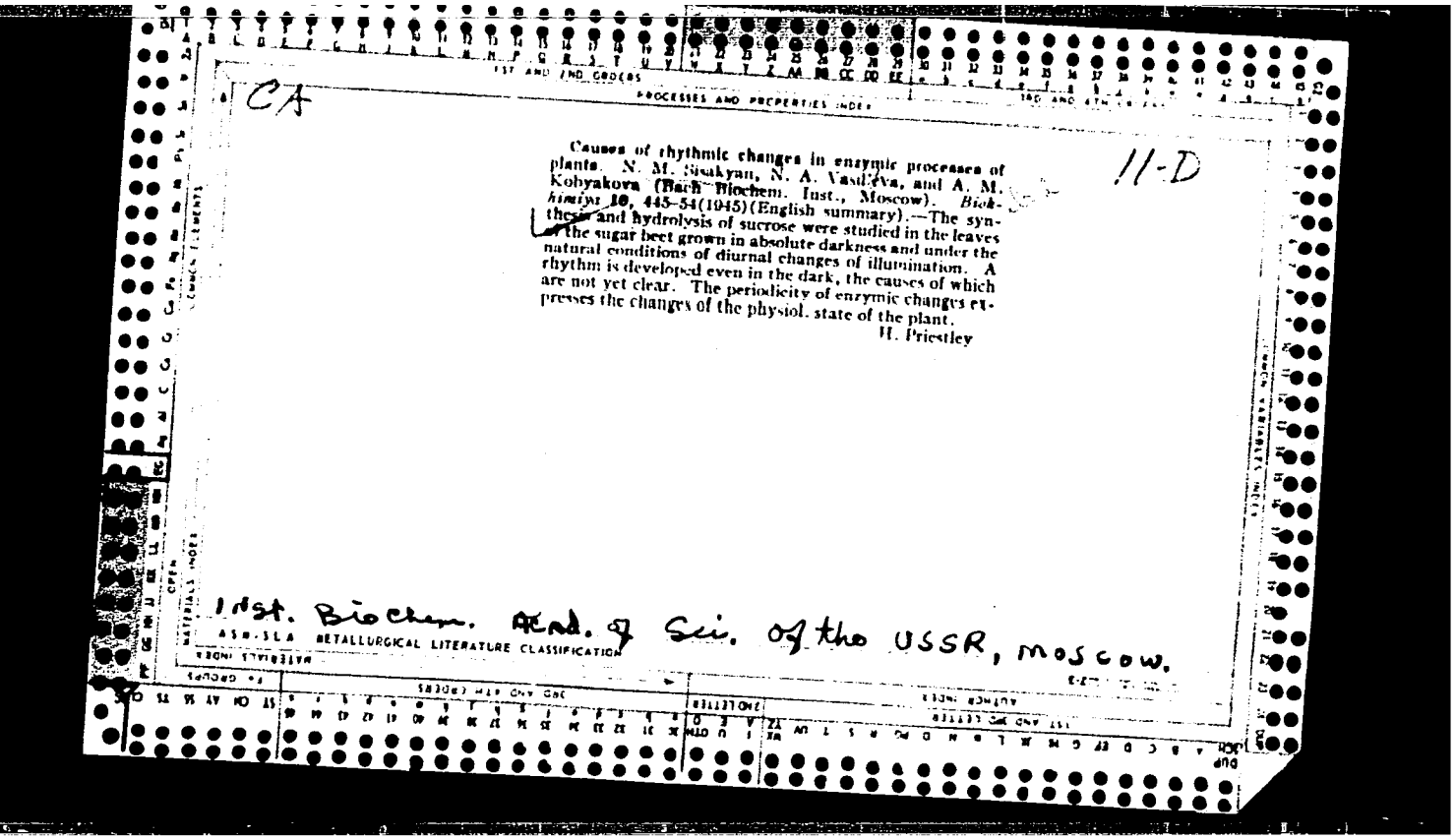
CA

110

Enzymic periodicity in leaves as related to the development of storage and reproductive organs. N. M. Sisakyan, A. M. Kobyakova, and N. A. Vasil'eva (Bach Biochem. Inst., Moscow), *Biokhimiya* 10, 303-10(1945).- By the method of vacuum infiltration (*C.A.* 31, 1450[9]) it is found that the age and the physiol. condition of the plant det. the variations of the diurnal rhythm of sucrose synthesis and hydrolysis. The amplitude of the diurnal changes varies with the intensity of photosynthesis and the amt. of plastic material transported from the leaves to the reproductive and storage organs of the plant. The higher the demand of the organism for plastic substances, the greater is the variation in the changes. H. Priestley

Inst. of Biochem., Acad. of Sciences of the USSR, Moscow.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

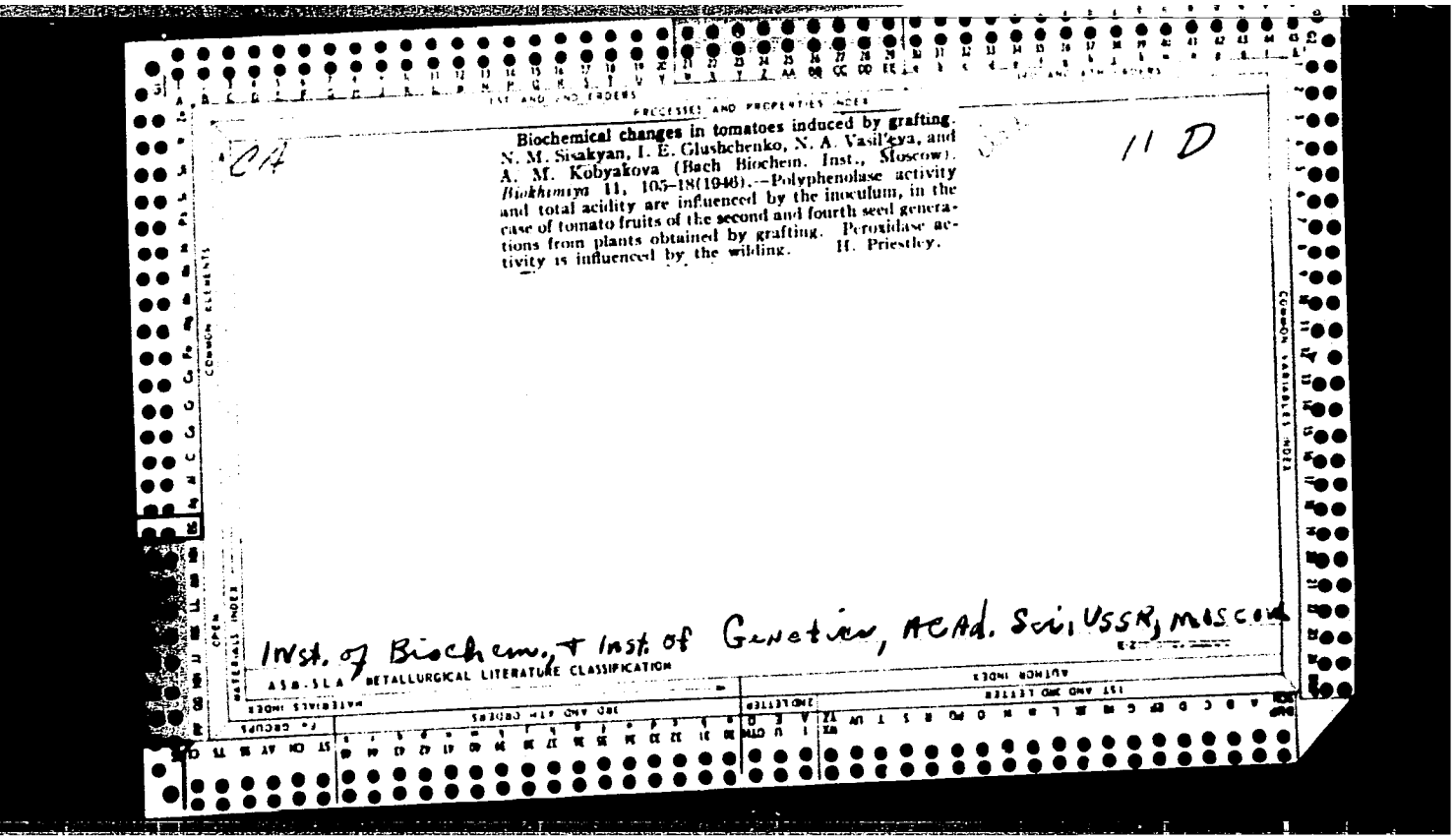


CA

11-D

Causes of rhythmic changes in enzymic processes of plants. N. M. Sisakyan, N. A. Vasil'eva, and A. M. Kobyakova (Biochem. Inst., Moscow). *Biokhimiya* **10**, 445–54(1945)(English summary).—The synthesis and hydrolysis of sucrose were studied in the leaves of the sugar beet grown in absolute darkness and under the natural conditions of diurnal changes of illumination. A rhythm is developed even in the dark, the causes of which are not yet clear. The periodicity of enzymic changes expresses the changes of the physiol. state of the plant.
H. Priestley

Inst. Biochem. Acad. of Sci. of the USSR, Moscow.

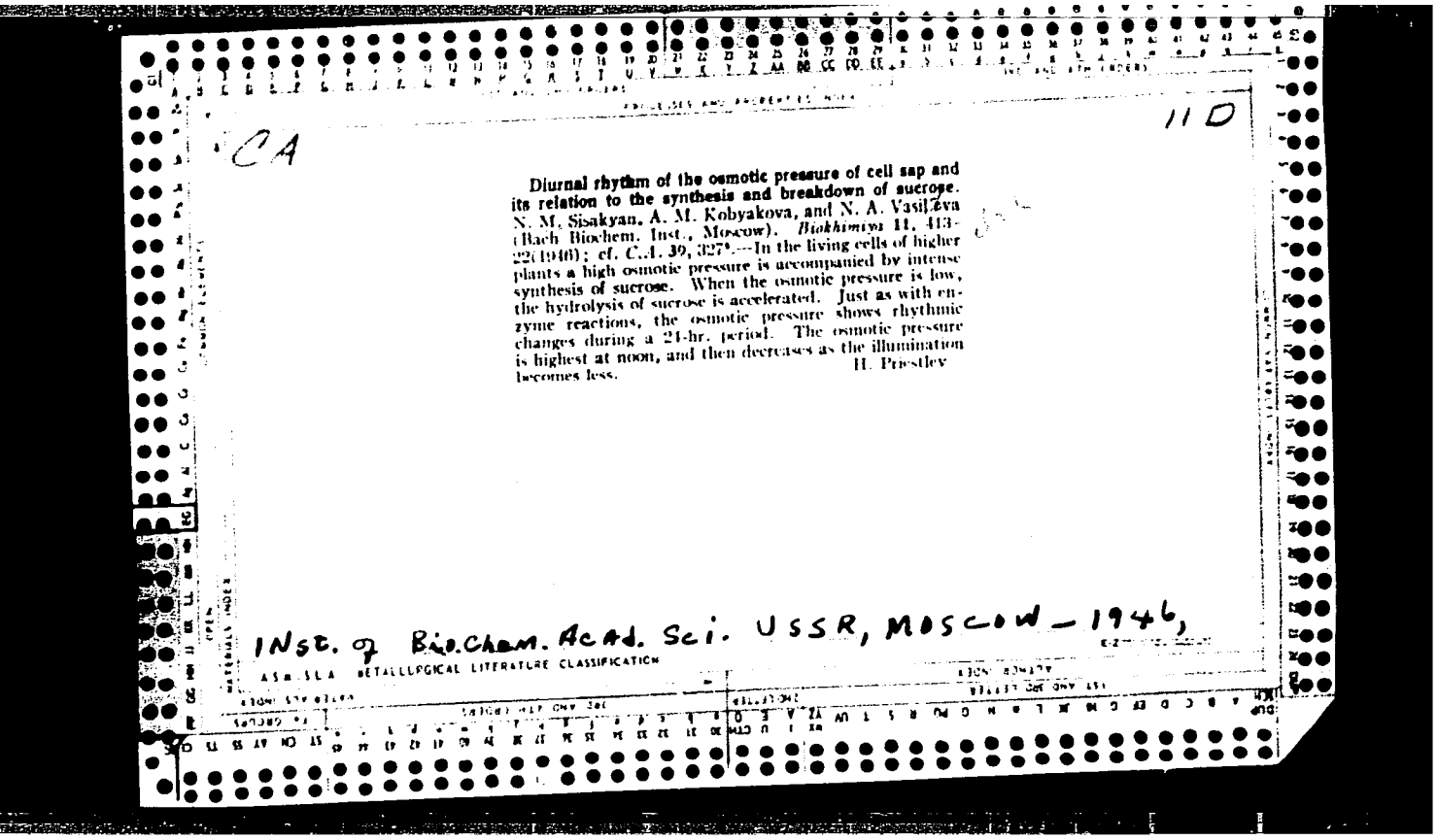


CA

11 D

Biochemical changes in tomatoes induced by grafting. N. M. Sisakyan, I. E. Glushchenko, N. A. Vasil'eva, and A. M. Kobyakova (Bach Biochem. Inst., Moscow). *Biokhimiya* 11, 105–18(1946).—Polyphenolase activity and total acidity are influenced by the inoculum, in the case of tomato fruits of the second and fourth seed generations from plants obtained by grafting. Peroxidase activity is influenced by the wilding. H. Priestley.

Inst. of Biochem. & Inst. of Genetics, Acad. Sci. USSR, Moscow



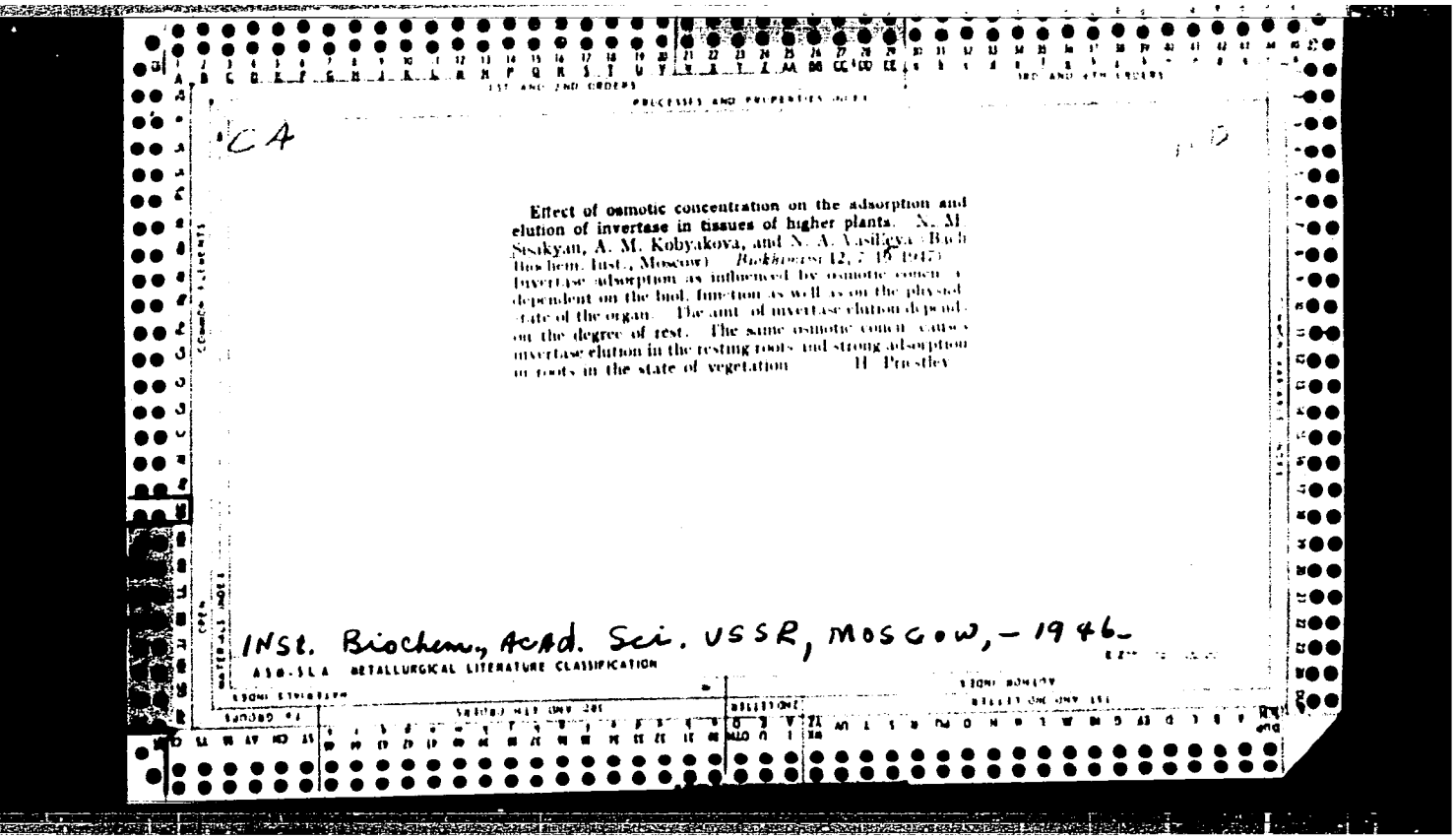
CA

110

Diurnal rhythm of the osmotic pressure of cell sap and its relation to the synthesis and breakdown of sucrose. N. M. Sisakyan, A. M. Kobyakova, and N. A. Vasil'eva (Bach Biochem. Inst., Moscow). *Biokhimiya* 11, 413-22(1946); cf. *C.A.* 39, 327⁹.—In the living cells of higher plants a high osmotic pressure is accompanied by intense synthesis of sucrose. When the osmotic pressure is low, the hydrolysis of sucrose is accelerated. Just as with enzyme reactions, the osmotic pressure shows rhythmic changes during a 24-hr. period. The osmotic pressure is highest at noon, and then decreases as the illumination becomes less. H. Priestley

Inst. of Biochem. Acad. Sci. USSR, Moscow - 1946,

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

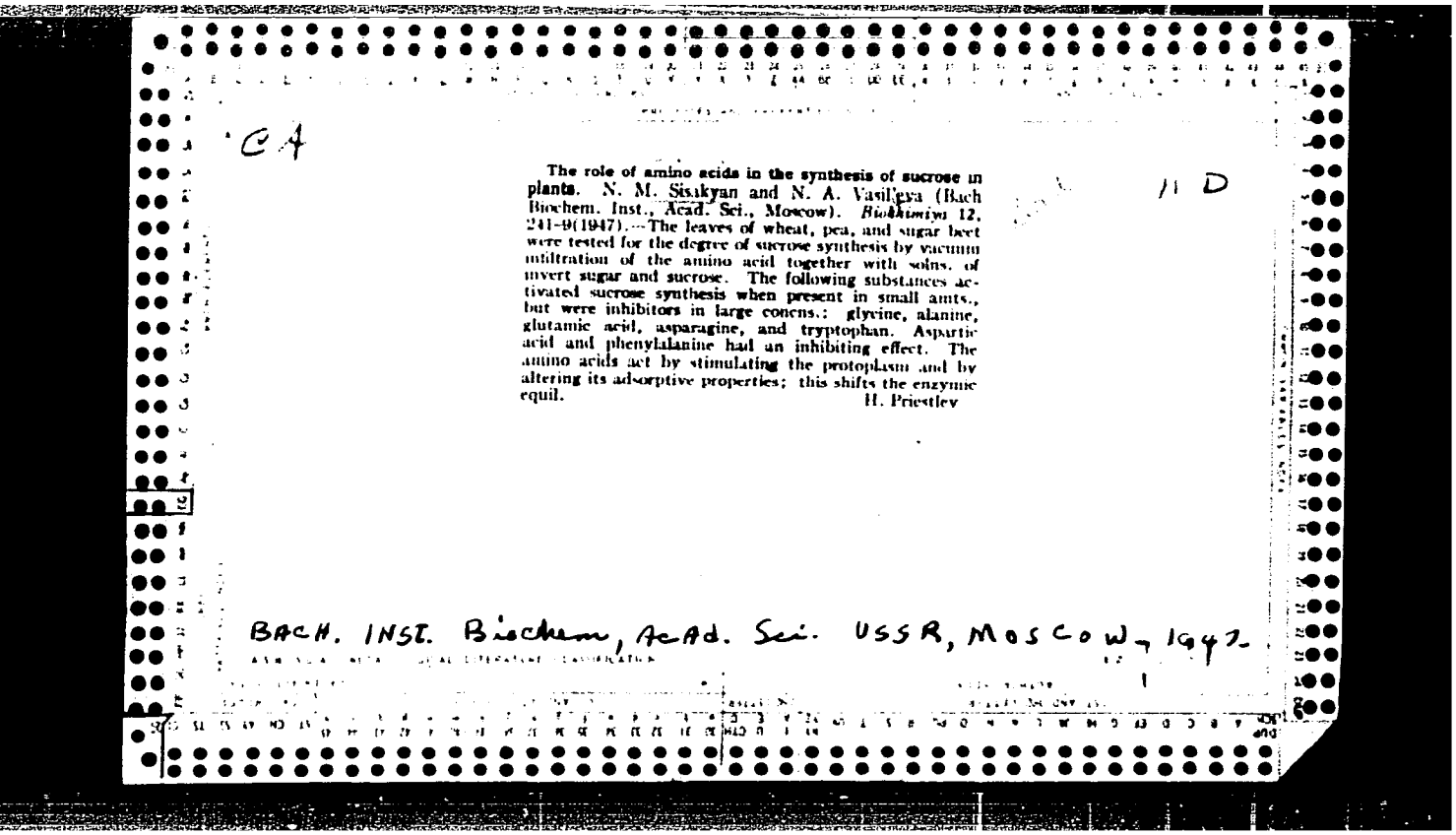


CA

Effect of osmotic concentration on the adsorption and elution of invertase in tissues of higher plants. N. M. Sisikyan, A. M. Kobyakova, and N. A. Vasil'eva (Biochem. Inst., Moscow). *Biokhimiya* 12, 7-19 (1947). Invertase adsorption as influenced by osmotic concn. is dependent on the biol. function as well as on the physiol. state of the organ. The amt. of invertase elution depends on the degree of rest. The same osmotic concn. causes invertase elution in the resting roots and strong adsorption in roots in the state of vegetation. H. Priestley

Inst. Biochem., Acad. Sci. USSR, Moscow, - 1946 -

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

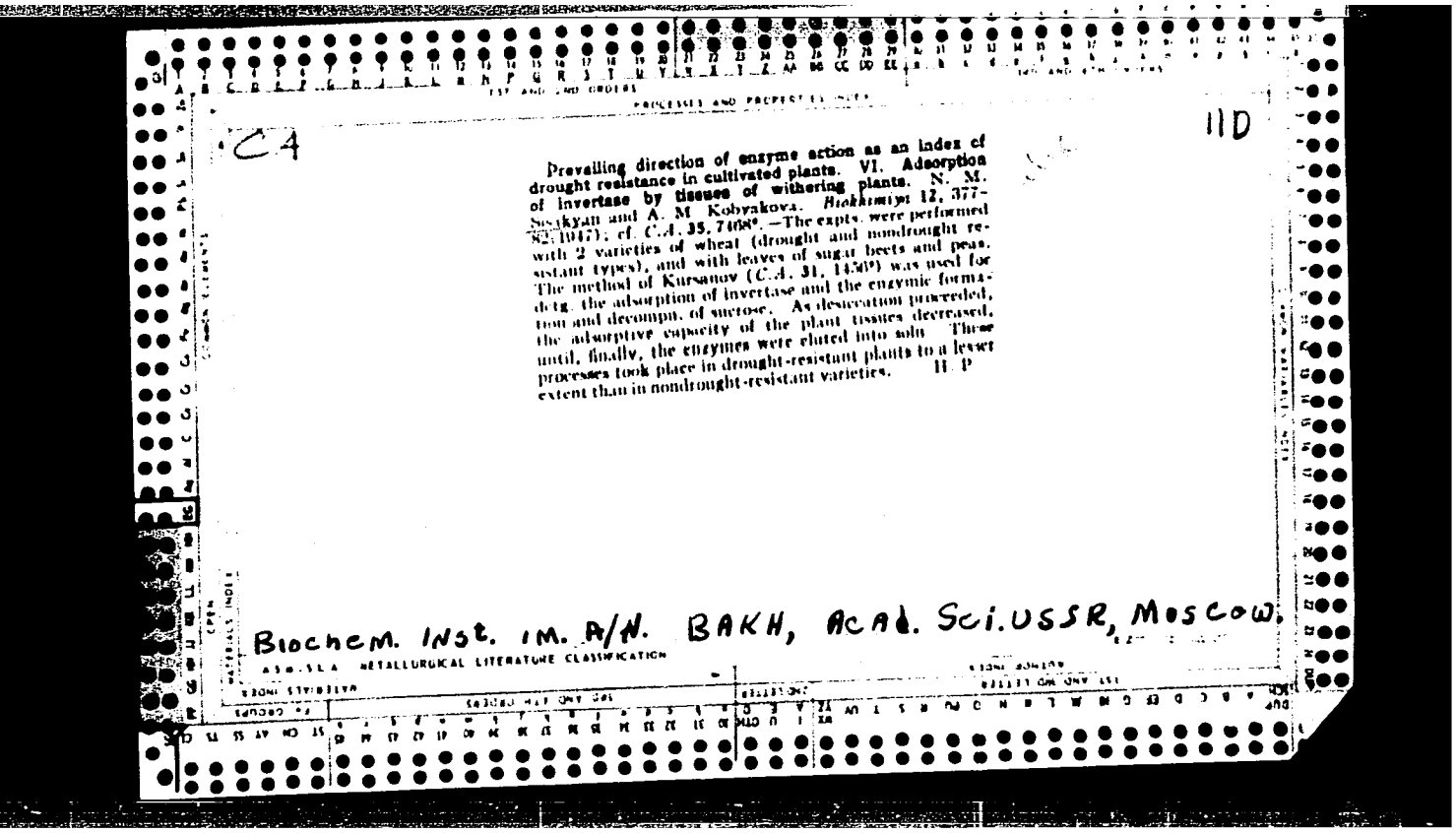


C4

The role of amino acids in the synthesis of sucrose in plants. N. M. Sisakyan and N. A. Vasil'eva (Bach Biochem. Inst., Acad. Sci., Moscow). *Biokhimiya* 12, 241–9(1947).—The leaves of wheat, pea, and sugar beet were tested for the degree of sucrose synthesis by vacuum infiltration of the amino acid together with solns. of invert sugar and sucrose. The following substances activated sucrose synthesis when present in small amts., but were inhibitors in large concns.: glycine, alanine, glutamic acid, asparagine, and tryptophan. Aspartic acid and phenylalanine had an inhibiting effect. The amino acids act by stimulating the protoplasm and by altering its adsorptive properties; this shifts the enzymic equil.
H. Priestley

11 D

BACH. INST. Biochem, Acad. Sci. USSR, Moscow, 1947.



C4

Prevailing direction of enzyme action as an index of drought resistance in cultivated plants. VI. Adsorption of invertase by tissues of withering plants. N. M. Sisakyan and A. M. Kobyakova. *Biokhimiya* 12, 377–83 (1947); cf. *C.A.* 35, 7468⁸. —The expts. were performed with 2 varieties of wheat (drought and nondrought resistant types), and with leaves of sugar beets and peas. The method of Kursanov (*C.A.* 31, 1430⁹) was used for detg. the adsorption of invertase and the enzymic formation and decompn. of sucrose. As desiccation proceeded, the adsorptive capacity of the plant tissues decreased, until, finally, the enzymes were eluted into soln. These processes took place in drought-resistant plants to a lesser extent than in nondrought-resistant varieties. H. P.

IID

Biochem. Inst. im. A/N. BAKH, Acad. Sci. USSR, Moscow.

SISAKYAN, N . M.

Sep/Oct 1947

USSR/Medicine - Chemistry
Medicine - Plants

"Plant Biochemistry in the Soviet Union for Thirty Years, " A. I. Oparin, N. M. Sisakyan, Moscow, 10 pp

"Uspekhi Sovremennoy Biologii" Vol XXIV, No 2 (5)

Historical development of the science of plant biochemistry in Soviet Union for the first 30 years of Soviet rule. Discusses some of the more important institutes connected with this development, and mentions names of more important contributing scientists.

PA40T37

Factors that determine the intensity of adsorption of enzymes by plant tissues. N. M. Sisakyan and A. M. Kobyakova (A. N. Bakh Biochem. Inst., Moscow). *Doklady Akad. Nauk S.S.S.R.* 57, 803–6(1947).—Expts. with sugar beet showed that invertase adsorption does not show a clear-cut correlation with osmotic pressure in the leaves, but in the root system there is a rapid rise of adsorption with increase of osmotic pressure. As osmotic pressure rises adsorption or elution of the enzyme in turgid roots increases until at 32 atm. osmotic pressure a max. is reached, after which a decline sets in. In leaves the crit. pressure is about 18 atm. G. M. Kosolapoff

SISAKYAN, N.M.; YEGOROV, I.A.; AFRIKYAN, B.L.

Age variation of tannins in grape varieties [in Russian with English summary]. Biokhim.vin. no.1:158-169 '47. (MLRA 7:10)

1. Institut vinodeliya i vinogradarstva AN Armyanskoy SSR. 2. Institut biokhimii imeni A.N.Bakha.
(Grapes--Varieties) (Tannins)

SISAKYAN, N. M.

PA 58T10

USSR/Chemistry - Sucrose Aug 1947
Chemistry - Sugar Beets

"Daily Periodicity of the Absorption Ability in Plants and Its Relation to the Fermentative Synthesis of Sucroses," N. M. Sisakyan, A. M. Kobyakova, N. A. Vasil'yeva, Inst Biochem imeni A. N. Bakh, Acad Sci USSR, 1½ pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LVII, No 5

Describes experiments which lead to conclusion that roots of sugar beet possess capacity for intensive formation of sucrose after free invertase in them has been absorbed. Submitted by Academician A. I. Oparin, 20 Jan 1947.

[redacted]

58T10

SISAKYAN, N. M. and KOBYAKOVA, A. M.

"The Transfer of Ferments in Plants," Dok. AN 57, No. 6, 1947.

CA

IRD

Influence of mineral elements on the adsorption of invertase by the tissues of higher plants. N. M. Sisikyan (Bach Biochem. Inst., Moscow). *Doklady Akad. Nauk S.S.S.R.* 58, 1907-9(1947); *Chem. Zentr.* 1948, II, 200; cf. *C.A.* 41, 4830*g*; 42, 6418*f*.—Grains of young winter wheat were vacuum-infiltrated with salt solns., dried to their original wt., and then kept for 3 hrs. in a moist chamber at room temp. The grains were sliced and the ability to adsorb invertase was detd. according to Kursanov (cf. *C.A.* 41, 501*h*). The data reported indicate that NaCl, $NaNO_3$ and Na_2SO_4 had no appreciable effect on the ability to adsorb invertase. The corresponding K salts increased adsorption slightly. $(NH_4)_2SO_4$ and NH_4Cl produced a considerable increase in adsorption, while NaH_2PO_4 and KH_2PO_4 produced a still greater increase.
M. G. Moore

1951

SISAKYAN N. M.

Biochemical characteristics of different varieties of grapes and their relation to the type of wine. N. M. Sisakyan, I. A. Egorov, and B. L. Afrikyan. *Biokhim. Vinodeliya, Akad. Nauk S.S.S.R., Sbornik 2*, 7-55(1948).—The grapes studied were the Armenian varieties Voskeat, Chilar, Makhali, and Garandmak. Data are given for the amts. of titratable acidity (I), volatile fatty acids (II), pH, acetal, AcH, tannins (total, water sol., 1% NaOH sol., polyphenols, and phloroglucinol), total N, nonprotein N, vitamin C, vitamin B_1, nicotinic acid, Et_2O- and petr. ether-extd. org. esters (total III), neutral (IV), and acidic (V), monosaccharides, sucrose, starch, evolution of CO_2, alc., ash, and enzymic activity of peroxidase, ascorbic acid oxidase, polyphenol oxidase, and invertase in leaves, grapestalks, grapes, seeds, and (or) in must and wine. The rate of synthesis and hydrolysis of sucrose was detd. in leaves only. The detns. were carried out shortly before flowering, during flowering, shortly before ripening of the grapes, at the beginning of ripening, at full physiol. maturity, and at the time of leaf shedding. Marked physiol. and biochem. differences were noticed, especially between the sherry (Voskaet and Chilar) and nonsherry sorts. Wines obtained from the sherry sorts were superior in color, development of flavoring substances, and biochem. compn., in particular in the case of Voskat wine with a biochem. compn. after the first filtering as follows: alc. 11.90 (ebullioscopic) and 12.23% (sp. gr.) (sugar concn. of the must was 24.9%), I 3.00 mg. % (as tartaric acid), II 0.92 mg. % (as AcOH), pH 3.00, acetal 30.8 mg./l., total tannins 249.0, AcH 54.5, total N 273.5, and vitamin C 1.3 mg./l., vitamin B_1 44.0, and nicotinic acid 800.0 γ, ash 2.24 g./l., III 4.00, IV 1.50, and V 2.50 meq./l., resp. Except for I, vitamin C, ash, and pH these are the highest abs. values. The amts. of acetal, tannins, and AcH are approx. twice as high as in the nonsherry wines. 51 references.

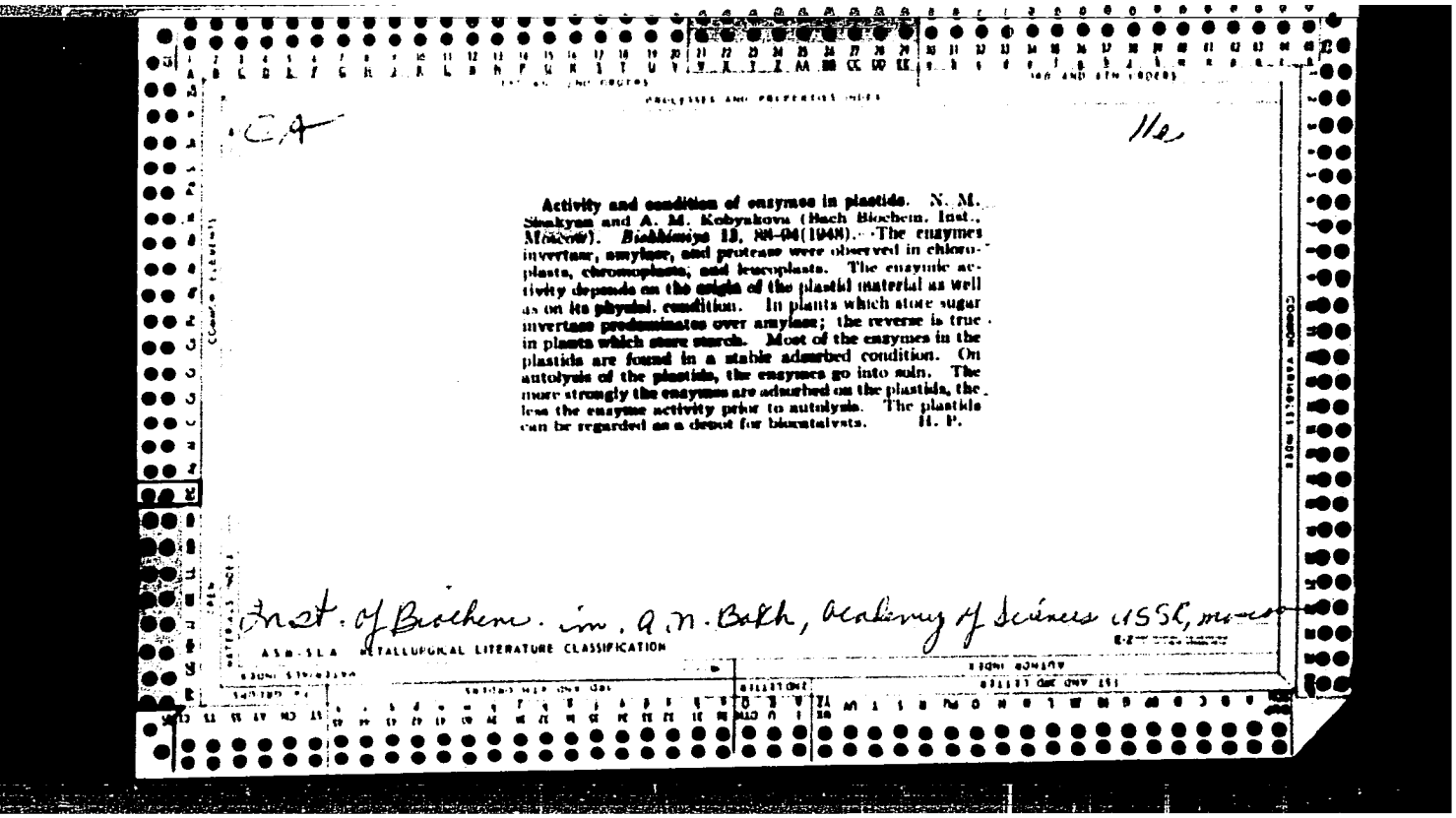
E. Wierbicki

Sisakyan N. M.

Grape sugars. N. M. Sisakyan and S. A. Marutyan. *Biokhim. Vinodeliya, Akad. Nauk S.S.S.R., Sbornik* 2, 51–68(1948).—Sucrose, glucose, and fructose were detd. in 36 different varieties of grapes, harvested at the beginning of ripening, at physiol. maturity, and at technological maturity. All grapes contained 0.2–1.5% sucrose. Total amt. of glucose and fructose increased with maturity, reaching the highest values 17.2–23.4%, at technological maturity. The glucose-fructose ratio showed a variation from 0.36 to 1.14. B. Werbicki

SISAKYAN N.M.

Biochemical nature of sherry wines. N. M. Sisakyan, E. M. Popova, I. A. Egorov, and M. G. Puchkova. *Biokhim. Vinodeliya, Akad. Nauk S.S.S.R., Sbornik* 2, 69–85 (1948).—Eleven sherries of different ages (1–46 years old) were investigated. It was found that the sherry-type fermentation consists of 2 periods, formation of AcH and transformation of AcH into acetal, and that the flavor of sherry wines depends on the ratio of AcH/acetal rather than on their abs. amts. The best old wines had a ratio of 1.21–1.26. Org. esters (up to 26.8 meq./l.) were formed during the fermentation. Aging of wines was accompanied by a decrease of esters. Active esterase was found in all wine samples; its hydrolytic and (or) synthetic activity depended on the origin and age of wine. The higher amt. of tannins in old wines was due to their diffusion from the oak containers into the wine and (or) to the reduction of the oxidized forms of tannins during the aging. Spanish sherry contained the highest amt. of phloroglucinol (46.0 mg./l.) as compared with the native sorts (2.0–8.6 mg./l.). The lowest amt. of amino N (24.00 mg./l.) was found in the most typical sherries. The amt. of vitamins (thiamin, riboflavine, and niacin) decreased during the fermentation. The differences among the samples with respect to the titratable acidity and pH were small. 22 references. E. Wierbicki



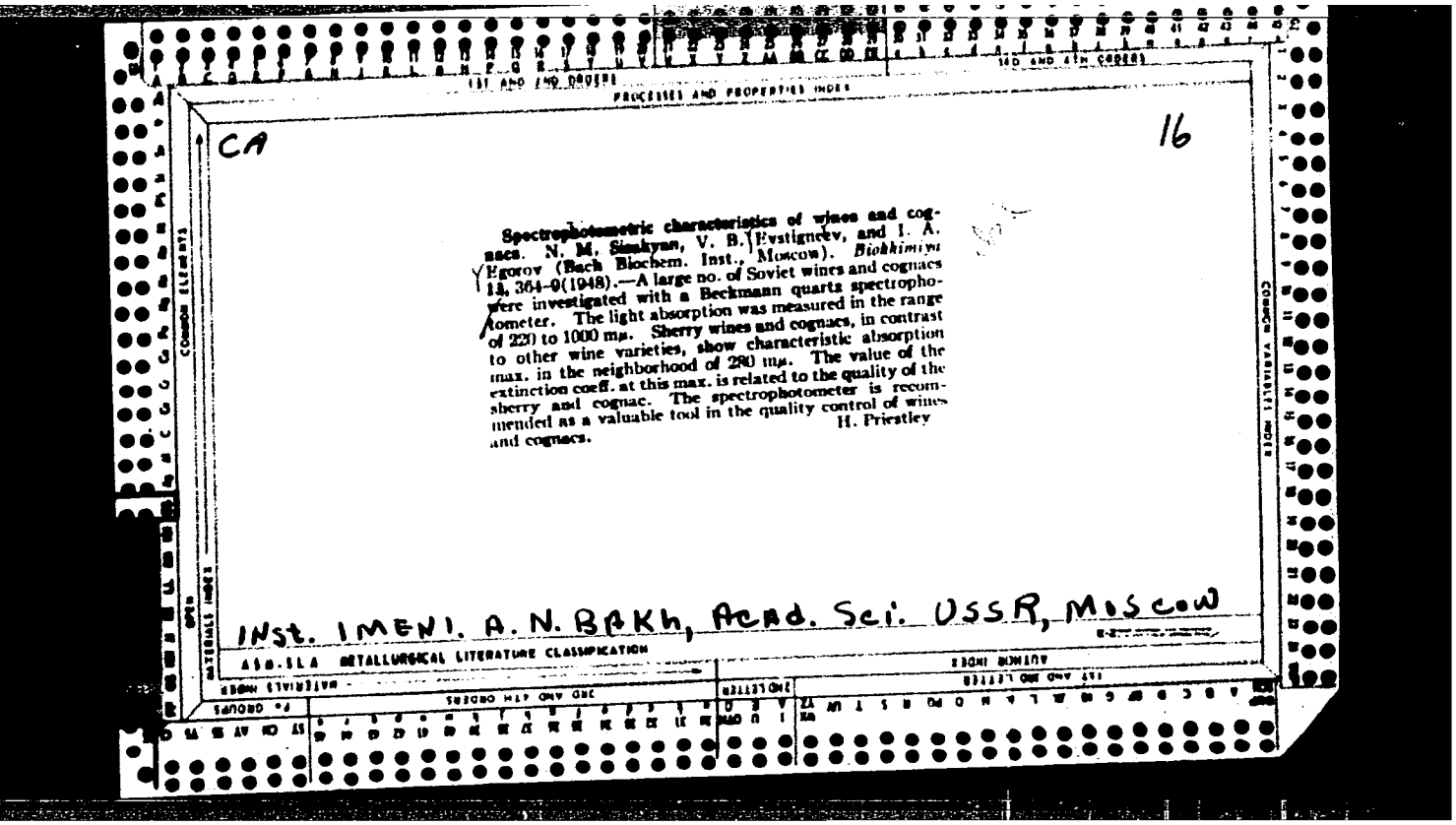
CA

11a

Activity and condition of enzymes in plastids. N. M. Sisakyan and A. M. Kobyakova (Bach Biochem. Inst., Moscow). *Biokhimiya* **13**, 88-94(1948).—The enzymes invertase, amylase, and protease were observed in chloroplasts, chromoplasts, and leucoplasts. The enzymic activity depends on the origin of the plastid material as well as on its physiol. condition. In plants which store sugar invertase predominates over amylase; the reverse is true in plants which store starch. Most of the enzymes in the plastids are found in a stable adsorbed condition. On autolysis of the plastids, the enzymes go into soln. The more strongly the enzymes are adsorbed on the plastids, the less the enzyme activity prior to autolysis. The plastids can be regarded as a deposit for biocatalysts. H. P.

Inst. of Biochem. im. A. N. Bakh, Academy of Sciences USSR, Moscow

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

16

Spectrophotometric characteristics of wines and cognacs. N. M. Sisakyan, V. B. Evstigneev, and I. A. Egorov (Bach Biochem. Inst., Moscow). *Biokhimiya* 14, 364–9(1948).—A large no. of Soviet wines and cognacs were investigated with a Beckmann quartz spectrophotometer. The light absorption was measured in the range of 220 to 1000 mμ. Sherry wines and cognacs, in contrast to other wine varieties, show characteristic absorption max. in the neighborhood of 280 mμ. The value of the extinction coeff. at this max. is related to the quality of the sherry and cognac. The spectrophotometer is recommended as a valuable tool in the quality control of wines and cognacs.
H. Priestley

INst. IMENI. A. N. BAKh, Acad. Sci. USSR, Moscow

SISAKYAN, N. M.

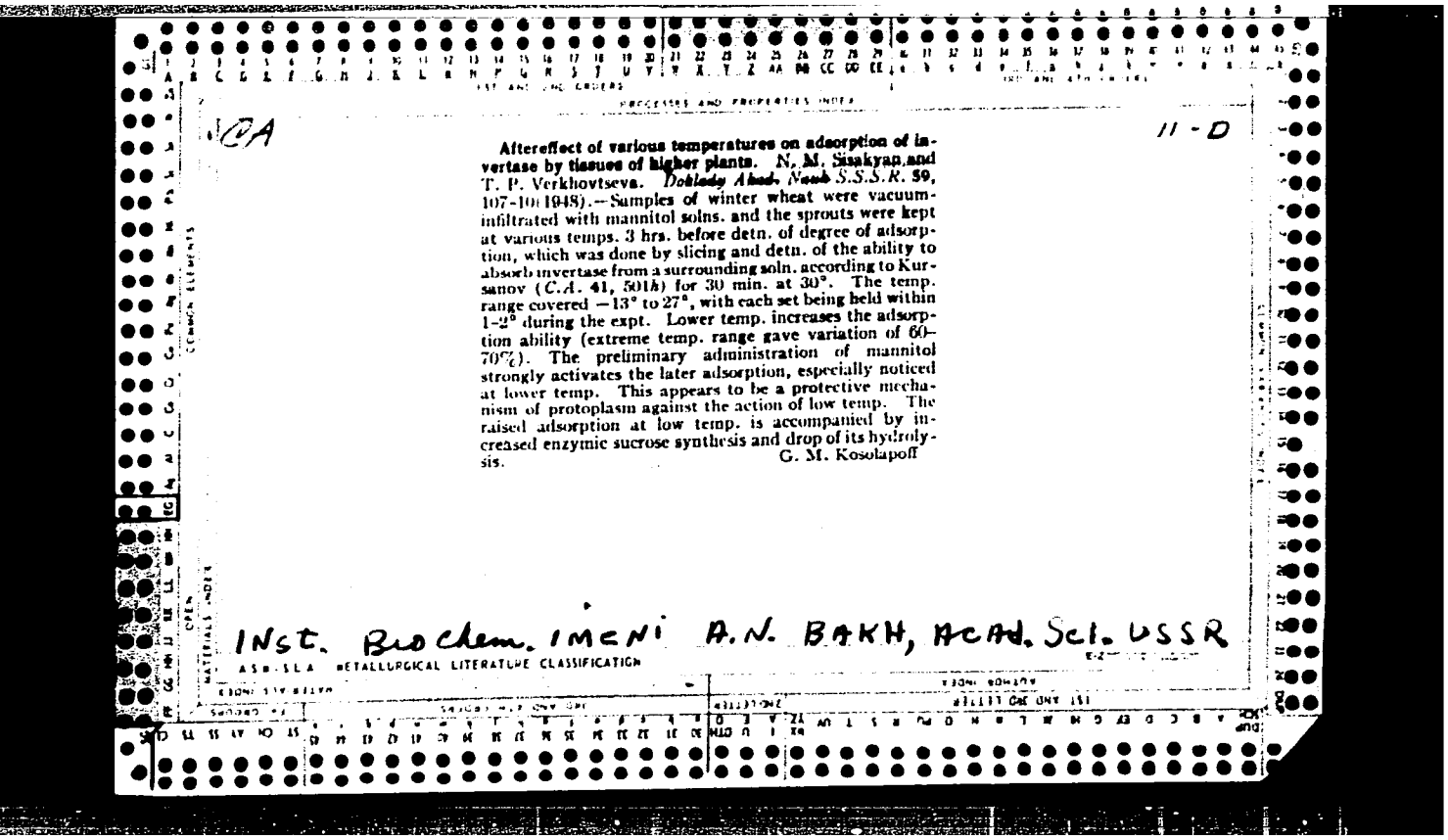
USSR/Medicine - Enzymes Jan/Feb 1948
Medicine - Leukocytes

"The Activity and Composition of Ferments in Plastids," N. M. Sisakyan, A. M. Kobyakova, Inst of Biochem imeni A. N. Bakh, Acad Sci USSR, Moscow, 7 pp

"Biokhim" Vol XIII, No 1

Chloroplasts, chromoplasts, and leucocytes contain invertase, amylase, and protease. Degree of fermentative activity of plastid matter depends on its genesis and on the physiological condition of the plastid. Plastids can be considered as centers for biocatalysts, which take part in the process of cellular conversion in cycles during ontogenesis. Submitted 1 Sep 1947.

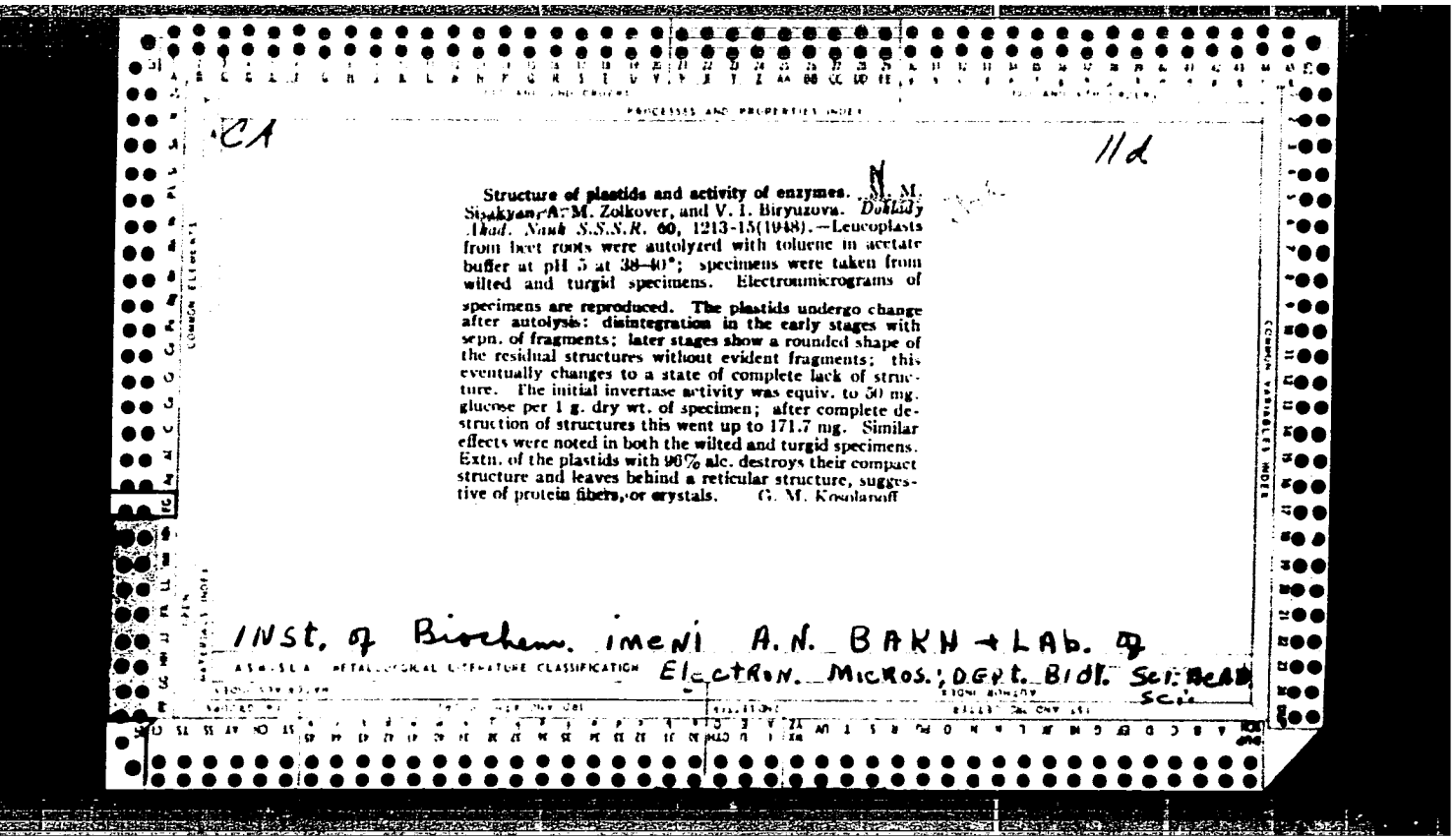
54T60



11-D

Aftereffect of various temperatures on adsorption of invertase by tissues of higher plants. N. M. Sisakyan and T. P. Verkhovtseva. *Doklady Akad. Nauk S.S.S.R.* 59, 107-10(1948).—Samples of winter wheat were vacuum-infiltrated with mannitol solns. and the sprouts were kept at various temps. 3 hrs. before detn. of degree of adsorption, which was done by slicing and detn. of the ability to absorb invertase from a surrounding soln. according to Kursanov (*C.A.* 41, 501*h*) for 30 min. at 30°. The temp. range covered −13° to 27°, with each set being held within 1–2° during the expt. Lower temp. increases the adsorption ability (extreme temp. range gave variation of 60–70%). The preliminary administration of mannitol strongly activates the later adsorption, especially noticed at lower temp. This appears to be a protective mechanism of protoplasm against the action of low temp. The raised adsorption at low temp. is accompanied by increased enzymic sucrose synthesis and drop of its hydrolysis.
G. M. Kosolapoff

Inst. Biochem. imeni A.N. Bakh, Acad. Sci. USSR



CA

11d

Structure of plastids and activity of enzymes. N. M. Sisakyan, A. M. Zolkover, and V. I. Biryuzova. *Doklady Akad. Nauk S.S.S.R.* 60, 1213-15(1948).—Leucoplasts from beet roots were autolyzed with toluene in acetate buffer at pH 5 at 38–40°; specimens were taken from wilted and turgid specimens. Electronmicrograms of specimens are reproduced. The plastids undergo change after autolysis: disintegration in the early stages with sepn. of fragments; later stages show a rounded shape of the residual structures without evident fragments; this eventually changes to a state of complete lack of structure. The initial invertase activity was equiv. to 50 mg. glucose per 1 g. dry wt. of specimen; after complete destruction of structures this went up to 171.7 mg. Similar effects were noted in both the wilted and turgid specimens. Extn. of the plastids with 96% alc. destroys their compact structure and leaves behind a reticular structure, suggestive of protein fibers, or crystals. G. M. Kosolapoff

Inst. of Biochem. imeni A. N. Bakh + Lab. of Electron. Micros., Dept. Biol. Sci. Acad. Sci.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

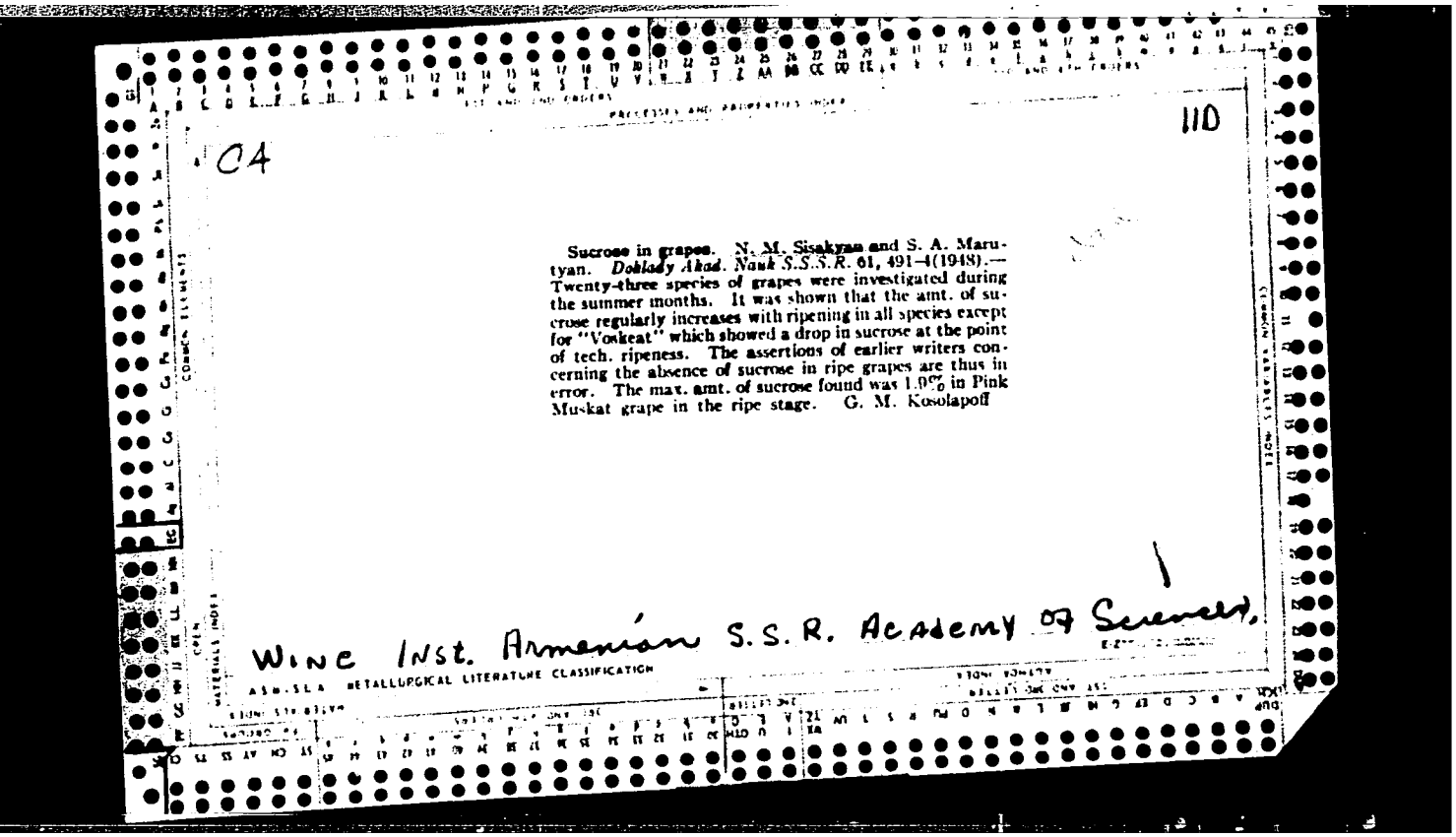
USSR/Medicine - Enzymes Jun 1948
Medicine - Autolysis

"Structure of Plastids and Activity of Ferments," M. M. Sisakyan, A. M. Zolkover, V. I. Biryuzova, Inst of Biochem imeni A. N. Bakh, Lab of Electronic Micros, Dept of Biol Sci, Acad Sci USSR, 4 pp

"Dok Ak Nauk SSSR" Vol LX, No 7

Discusses character of the change of structure of plastids as result of their autolysis, and relations of changed condition of structures to activity of ferments included in plastids. Submitted Mar 1948.

[redacted] 76785



C4

110

Sucrose in grapes. N. M. Sisakyan and S. A. Marutyan. *Doklady Akad. Nauk S.S.S.R.* 61, 491–4(1948).—Twenty-three species of grapes were investigated during the summer months. It was shown that the amt. of sucrose regularly increases with ripening in all species except for "Voskeat" which showed a drop in sucrose at the point of tech. ripeness. The assertions of earlier writers concerning the absence of sucrose in ripe grapes are thus in error. The max. amt. of sucrose found was 1.0% in Pink Muskat grape in the ripe stage. G. M. Kosolapoff

Wine Inst. Armenian S.S.R. Academy of Sciences.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

USSR/Chemistry - Phosphorylases, Action of
Chemistry - Plastids, Isolated

Aug 48

"Phosphorylase in Isolated Plastids," M. M. Sisakyan, A. M. Kobyakova, Inst Biochem imeni A. N. Bakh, Acad Sci USSR, 3 pp

"Dok Ak Nauk SSSR" Vol LXI, No 6

PA 35/49T8

Plastids were isolated according to previously described method. Activity of phosphorylase was measured during both decrease and increase of inorganic phosphor, and consequently in presence of starch and inorganic phosphor and glucose-1-phosphate, with phosphatase action suppressed by introducing NaF into the reaction mixture. Tables show

35/49T8

USSR/Chemistry - Phosphorylases, Action of (Contd)

Aug 48

speed of starch phosphorylation under action of isolated plastids, synthesis of starch under action of phosphorylase of tuber potato's leucoplasts, activity of phosphorylase in chloroplasts of spinach leaves before and after dialysis, and activity of phosphorylase in various elements of plant tissues. Submitted by Acad A. I. Oparin, 21 Jun 48.

35/49T8

SISAKYAN, M. M.

USSR/Chemistry - Plastids, Isolated Sep 48
Chemistry - Enzymes

"Polyphenoloxydase and Peroxydase Activity of Isolated Plastids," N. M. Sisyakin, Ye. B. Kuvayeva, Inst Biochem imeni A. N. Bakh, Acad Sci USSR, 4 pp

"Dok Ak Nauk SSSR" Vol LXII, No 1

PA 35/49T16

Tables show: activity of purpurgalin ferments in mg on one gm of dry substance with 20-minute exposure, activity of ferments in leucoplasts of sugar beets before and after autolysis in mg of purpurgalin with a recalculation for one gm of dry

35/49T16

USSR/Chemistry - Plastids, Isolated (Contd) Sep 48

substance, effect of osmotic concentration of the surrounding solution on the desorption of ferments, and effect of centrifuging on the desorption of leucoplasts of beet sugars. Submitted by Acad A. I. Oparin, 21 Jun 48.

35/49T16

SISYAKIN, N. M.

CA

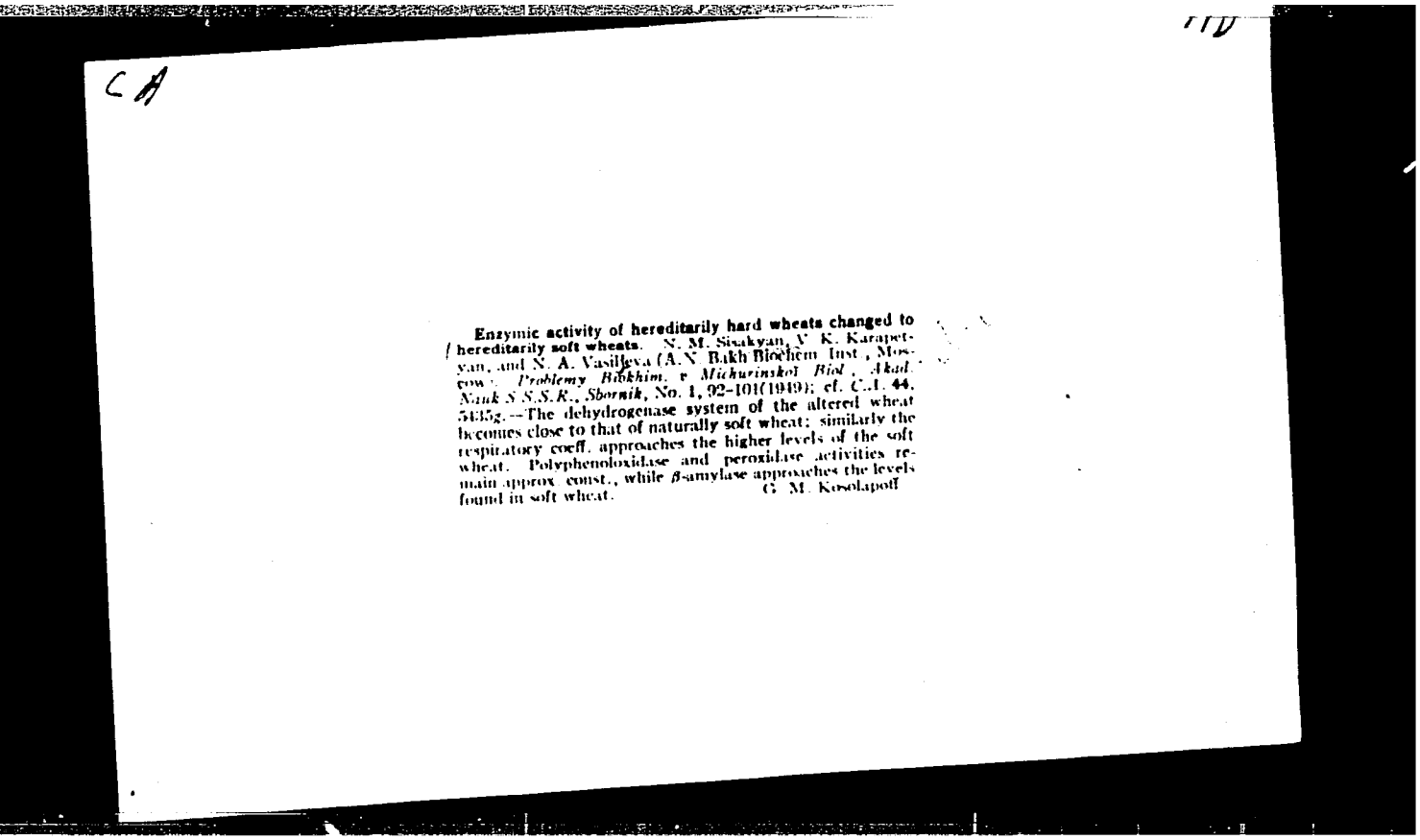
Inheritance of acquired biochemical factors in the seed progeny of vegetative hybrids. N. M. Sisakyan, I. E. Glushchenko, and N. A. Vasil'eva (A. N. Bakh Biochem. Inst., Moscow). *Problemy Biokhim. i Michurinskoĭ Biol.* *Akad. Nauk S.S.S.R.*, *Sbornik*, No. 1, 9–18 (1949).—Examn. of inheritance of biochem. indexes (sol. sugars, acidity, ascorbic acid content, carotenoids, thiamin and riboflavin content, nicotinic acid, and peroxidase and polyphenoloxidase activity) in the sexual and the vegetative graft hybrids among varieties of peach plants gave the following results. The seed progeny show the characteristics of both hybrid components. Vegetative hybrids show in numerous cases enhanced biochem. processes so that the progeny differ from both initial individuals, and the fruits of such progeny differ from the parent fruit in appearance as well as in chem. compn., thus showing inheritance of acquired characteristics. Voluminous tabulated data are supplied.

G. M. Kosolapoff

CH

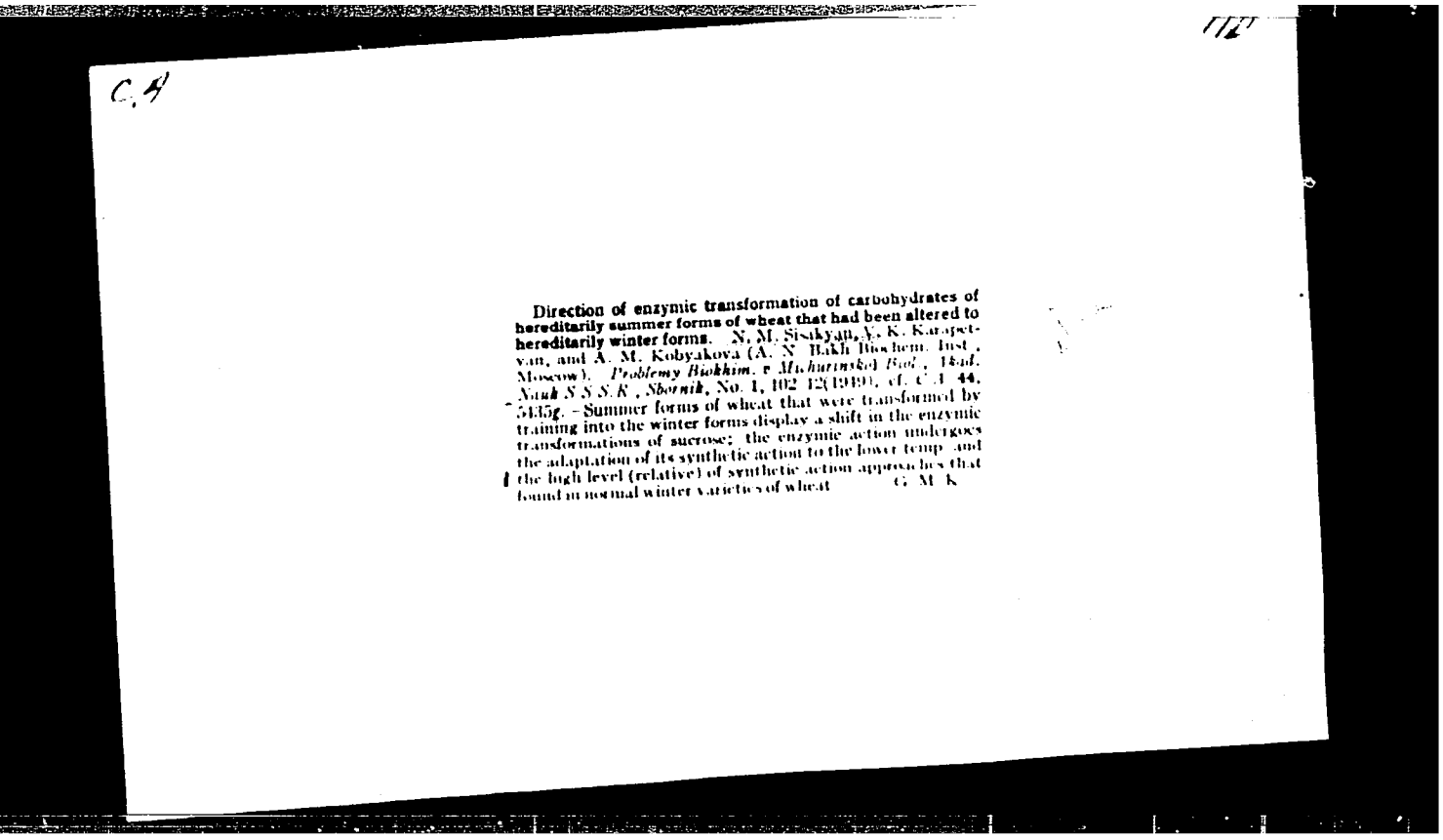
IID

Enzyme systems of Michurin varieties of apple trees B. A. Rubin and N. M. Sisakyan (A. N. Bakh Biochem Inst., Moscow). *Problemy Fiziol. i Michurinskoi Biol., Akad. Nauk S.S.S.R., Sbornik*, No. 1, 49-80 (1949). Early-summer ripening varieties of apple have very low leaf-peroxidase activity, while the late-summer varieties have rather high activity increasing the later the season. The highest leaf tiers show the highest peroxidase activity, while polyphenoloxidase shows the reverse trend. Enzymes regulating hydrolysis of saccharides to monosaccharides increase this activity as the plant ages; the effect is strongest in the early varieties of the plant. The non-frost-resistant varieties show rapid inactivation of enzymic polysaccharide synthesis at 0°, while the resistant forms lose the activity only at −10°. Proteases also lose their synthetic ability more readily in nonresistant forms than in resistant forms, with concurrent increase of the hydrolytic reactions. Grafting of functionally young mentor plants (according to Michurin technique) can serve to improve the plant quality by the influence on the above-cited enzyme systems. Preliminary pos. results are given in tabular form. G. M. K.



CA

Enzymic activity of hereditarily hard wheats changed to hereditarily soft wheats. N. M. Sisakyan, V. K. Karapetyan, and N. A. Vasil'eva (A.N. Bakh Biochem. Inst., Moscow). *Problemy Biokhim. i Michurinskoi Biol., Akad. Nauk S.S.S.R., Sbornik*, No. 1, 92–101(1949); cf. C.A. 44, 5435g.—The dehydrogenase system of the altered wheat becomes close to that of naturally soft wheat; similarly the respiratory coeff. approaches the higher levels of the soft wheat. Polyphenoloxidase and peroxidase activities remain approx. const., while β-amylase approaches the levels found in soft wheat.
G. M. Kosolapoff



C.A

Direction of enzymic transformation of carbohydrates of hereditarily summer forms of wheat that had been altered to hereditarily winter forms. N. M. Sisakyan, V. K. Karapetyan, and A. M. Kobyakova (A. N. Bakh Biochem. Inst., Moscow). *Problemy Biokhim. i Mikhurinskoi Biol., Akad. Nauk S.S.S.R., Sbornik*, No. 1, 102-12(1939); cf. C.A. 44, 5135g. - Summer forms of wheat that were transformed by training into the winter forms display a shift in the enzymic transformations of sucrose; the enzymic action undergoes the adaptation of its synthetic action to the lower temp. and the high level (relative) of synthetic action approaches that found in normal winter varieties of wheat. G. M. K.

SISAKYAN, N. M.

PA 54/49T6

USSR/Biology
Academy of Sciences

Jun 49

"In the Department of Biological Sciences" 5 pp

"Vest Ak Nauk SSSR" No 6

Corr Mem N. M. Sisakyan's report, "Fermentative Activity of Protoplasmic Structures," described experimental studies in the structure of plastids. Discovered a whole series of ferments for the first time in plastids: peroxidase, polyphenoloxidase, cytochromoxidase, phosphorylase, protease, and dehydrase. Discovered amylase, invertase, protease, cytochromoxidase, and dehydrase in leucoplasts and chromoplasts.

54/49T6

SISAKYAN, N. M. PA 45/49T55

USSR/Medicine - Biochemistry Jan/Feb 49
Medicine - Enzymes, Effect

"Fermenting Activity of Protoplasmic Structures," N. M. Sisakyan, A. M. Kobyakova, Inst of Biochem imeni A. N. Bakh, Acad Sci USSR, Moscow, 7¼ pp

"Biokhimiya" Vol XIV, No 1

Investigates activity of ferments in cell structures, and stability of ad orption links of these ferments with lipoproteid complex of plastids. Studies ferments: invertase, phosphorylase, peroxidase and polyphenoloxydase. States conclusions. Submitted 7 Jul 48.

45/49T55

[illegible], E. M.

PA 54/49T85

USSR/Medicine - Plastids
Medicine - Biochemistry

Jul 49

"Dehydrogenases of Plastids," N. M. Siskayan, K. G. Chamova, Inst of Biochem imeni A. N. Bakh, Acad Sci USSR, 4 pp

"Dok Ak Nauk SSSR" Vol LXVII, No 2

Comparative study of dehydrogenasic activity in chloroplasts, chromoplasts and leucoplasts showed it was greatest in chloroplasts and smallest in leucoplasts. Activity in chromoplasts was not observable by the methods used. Submitted by Acad A. I. Oparin 21 May 49.

[redacted]

54/49T85