

(**40-** « **»**
11-12 2007 , **»**)

2007

614.275+616-003.73(063)

52.81

43

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43 (40- «
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. . . : 11-12 2007 . - -
: , 2007. – 216 .
ISBN 978-985-496-304-4

Pharmaceuticals and Biologically Active Compounds (dedicated to the 40th anniversary of the Institute of Pharmacology and Biochemistry of the National Academy of Sciences of Belarus) Proceedings of the International Conference / Edited by P.S.Pronko, L.I. Nadolnik. – Grodno: October 11-12, 2007. – Grodno: GrSMU, 2007 – 216 p.

614.275+616-003.73(063)
52.81

ISBN 978-985-496-304-4

©

, 2007

-S-

„ *E-mail: sei@biobel.bas-net.by* „

(GSH),

(α -C), α -

α -
[1].

α -

(GST) (2.5.1.18).

GST

α -

C α - GST

[2].

(20% 5 Na- + 150 NaCl, 7,4)
(0,02-

30) t=18±2° α - (0,02-5) t=37°

GSH

13,6⁻¹ 412

0,1 α - GST 10-35%,

0,4 α - , - 25-55%

GS , α - ,

GSH - GSH

/ (1 28). 1,53 / 100 / . 1,53
 - “ ” 100 / . 100 / .
 1,0 0.9% 1 .
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PROSPECTS FOR USING GLUTARGIN IN LEAD INTOXICATION

Apykhtina O.L.¹, Kotsuruba A.B.², Dmytrukha N.M.¹, Korkach Yu.P.²,
Andrusishyna I.M.¹

¹ - *Institute for Occupational Health of AMS of Ukraine, Kyiv;* ² - *Palladin Institute of Biochemistry of the National Academy of Sciences of Ukraine, Kyiv*

_____ ¹, ¹, ¹, ²,
¹, ², ³,
¹
n.bashun@grsu.by; ² « , 230012, , 3/1. E-mail:
», , 2300030,
50. E-mail: val@biochem.unibel.by; ³ «
», ,

(« - - »).

« 06 -230».

**NEUROPEPTIDES AS REGULATORS OF PRO- AND
ANTIOXIDATIVE BALANCE AND ENERGY METABOLISM IN
BRAIN EXPERIMENTAL ISCHEMIA**

Bashun N.Z.¹, Raduta H.F.¹, Balash Zh.I.¹, Gupenets D.V.²,
Kanunnikova N.P.¹, Moiseenok A.G.², Golubovich B.P.³

¹ *Yanka Kupala's Grodno State University, Grodno, Belarus. E-mail: n.bashun@grsu.by;* ² *Institute for Pharmacology and Biochemistry of the NAS of Belarus, Grodno 230030, BLK, 50. E-mail: val@biochem.unibel.by;* ³ *Institute of Bioorganical Chemistry of the NAS of Belarus*

(16 α - 2-)

« »

_____ 1,

. 2, . .

¹

«

»

. . .
2 «

.11, . 5. E-mail: berdnad@mail.ru;
XXI», .

, 85-90% -
(2-)
(16-)
16 -
(),

, 10-15%
[1, 2]. 2-
, 16 -
2-
2- /16 - 2

(I3C) 1 1 450 2 (CYP19) -3-
 (ECGC) Era, « » -3-
 [2, 3]. : 1. (16 - 2-
) ; 2. « » -
 . 30 -
 41,3±4,28 . -
 - 10
 34,5±3,9 .
 . 1.

	, n 30	%
-	6	20%
,	4	13,3%
,	5	16,6%
,	8	26,6%
,	7	23,3%

1 « »,
 I3C 100 , EGCG, 60
 (,) 60 .
 . -
 - «Estramet» (ImmunaCare corporation, USA)
 « ».
 :

. 2.

	, /	1 -	
16 -	14,24± 2,0	9,09± 1,11	0,05
2-	10,25± 1,3	17,5± 2,15	0,05
2- /16 -	1,43± 0,10	2,56± 0,12	0,05

16 - 2- /16 -
 (<0,05 <0,05,).

2- « » 2 1 -
 2- 2- /16 -
 (<0,05 <0,05,).
 (<0,05). 16 - ,
 (<0,05).
 () .

. 3.

	, /	1 , /	
16 -	4,3± 1,39	3,04± 1,10	-
2-	11,71± 1,6	19,5± 1,2	0,05
2- /16 -	2,35± 0,4	5,09± 0,5	0,05

. 1. 16 -
 3 , ,
 « », . 2. 2-
 /16 - 2 , , -
 « », 2, -
 , -
 .

1. . . . , 2005.
2. Bradlow H.L. et al. Long-responses of women to indol-3-carbinol. Cancer Epidemiol. Biomarkers prev. 1994, #7, p. 591-595.
3. Lord R. S., et al. Estrogen metabolism and the diet-cancer connection Rationale for assessing the ratio of urinary hydroxylated estrogen metabolites. Altern med rev. 2002. . #7(2), 112-129.

STUDIES ON ESTROGEN METABOLITE LEVELS (16 α -OHE AND 2-OHE) IN WOMEN WITH PROLIFERATIVE DISEASES OF REPRODUCTIVE SYSTEM IN COMPARISON WITH RATHER HEALTHY WOMEN AFTER TREATMENT WITH THE STELLA BIOLOGICALLY ACTIVE NUTRIENT

Berdnikova N. G., Jilenko M.I., Shelkanova L.A.

Clinical Pharmacology Department of the Scientific Centre of Biomedical Technologies, Moscow, Russia

() ,

-3-

()

_____ 1,

1 « » .11, . 5. E-mail: berdnad@mail.ru

35-62% [2, 3].

-16,18,31,33,

(CIN)

. I-3-C

: 1.

1 1 450

2-

16α-

; 2.

6 7,

() ,

; 3.

:

I-3-C (

[1].

)

31,3±6,21

40

(

).

: CIN I-III,

: 1(V1)-

2(V2)-

3

3(V3) -

6 V1

2

: 1

24

300 / . 3

-16

(/

),

3%

20,8%

: 16,18

- 50%

; 31,33-

22,5%; 16,18,31,33-

15%, 6,11-

7,5%, 2-

1 V2 7 , ...
 , 17 ,
 23,5%, + -11,7%,
 +
 23,5%. 50% 2 - ,
 12,5% . 2
 CIN II-III (1). 1 2
 , 2 -
 V2 I-3-C .
 . 1. -

	3 (V 2)	6 (V 3)	
	1 (24 .)	2 (15 .)	
3	10 (41,6%)	14 (93,3%)	0,05
6	0	7 (63,6%)	0,05

2
 I-3-C : 1. 3 , 1 .
 , 2 ,
 2. , I-3-C -
 , 6 , -
 , I-3-C
 ,
 1. :

 :
 . Consilium medicum.
 2004. 06, N 4, . 34-38.
 2. . . .
 . 2000, . 2, 3.
 3. . . .
 , 2005.

STUDIES ON THE BIOLOGICALLY-ACTIVE NUTRIENT CONTAINING INDOL-3-CARBINOL IN COMPREHENSIVE THERAPY OF HUMAN PAPILLOMA VIRUS (HPV) INFECTION IN GYNECOLOGICAL PRACTICE

Berdnikova N. G., Cherkasova I.R., Osmakova E.K., Lomia M.A., Bazarova *D.V.*, *Clinical Pharmacology Department of the Scientific Centre of Biomedical Technologies, Moscow, Russia.*

(I-3-C),

()

“ ” .11, . 5. E-mail: berdnad@mail.ru

50-94%, - 25—30% [2].

. I-3-C

: 1)

2-

16α-

. 2)

6 7,

. 3)

() [1].

: 1)

I-3-C,

2)

36

: 1.

26,6±3,5 (21 ., 15 .).

(« »),

I-3-C,

300 / ; 2.

(V1) (); 2

(V2)-

2 3-

; 3

(V3) – 3 : 1

; 4

(V4)-

6

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V1

, 2-

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(6-

2-

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. 6

1,5-3

. 24

17,7±1,8 . 3 12 -
 300 ; 2 - : 1 -
 35,2±1,2)+ 1 / (300 + (-
 (36,5±0,9)+ 1 / (12-14); 3 -
). 12-14
 : 1 - V2 .
 . 2 . 1 -
 V3 , 4 -
 . 2 V2 ,
 , 4
 , 2 , 3 -
 V3 2 . , 1-
 - 3 V2 6 -
 46,3±2,3 , V3 , 1 -
 V2 V3
 1-1,2 . -
 + + , , 2,5-3 -
 (<0,05). , V4 -
 : + + -
 (2,5) -
 + . + + -
 , , -
 I-3-C - , -
 :
 1.
 . Consilium medicum.
 2004. 06, N 4, . 34-38.
 2. . 2007.

**ASSESSMENT OF EFFICIENCY OF BIOLOGICALLY-ACTIVE
 NUTRIENT CONTAINING INDOL-3-CARBINOL (I-3-C), IN TREAT-
 MENT OF HUMAN PAPILLOMA VIRAL (HPV) SKIN INFECTION**

Berdnikova N.G., Fartuch D.A.

Clinical Pharmacology Department of the Scientific Centre of Biomedical Technologies, Moscow, Russia

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cryopato@rambler.ru

61015. E-mail:

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MMTV.

3 ()

5 10⁶ 6- 57BL.

7 () 13

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MMTV.

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CD3⁺ () CD4⁺ (-) CD8⁺ (-
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13
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D4⁺ CD8⁺,
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Ia,
CD3⁺.
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MMTV
7,
13
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**SUBSTANTIATION OF APPLICATION OF FETAL LIVER CELLS
IN TREATMENT OF BREAST CANCER**

. . Bondarovich N.A, Porozhan E.A., Goltsev K.A., Ostankov M.V.,
Goltsev A.N.

, 220030, .

4, E-mail: bondev@mail.ru

0,15 NaCl; (5 Na- , pH 7,4;
10 , 37°

Cary 50 «Varian» (),
: 374 = 19,529, 363 = 19,872,
393 = 18,501, 365 = 22,245.

[1].
. 88,2% 83,3%

5
(68,5% 20).

MODIFYING EFFECTS OF FLAVONOLS ON HEMOGLOBIN

Bondaruk E.V., Sentchouk V.V.

(*LINUM USITATISSIMUM*.)

. . . 1, . . . 2, . . . 2, . . . 1

1 « », 220072,
 , 27. E-mail: S.Yurenkova@igc.basnet.by;² «
 », 220050,
 , 13 . E-mail: leontiev@bstu.unibel.by

– , –
(, , , –
) (52%), (> 500 /)
[1].

43% : ,
 35-

5%, - 3%, 5 - 15-25%, - 15%, - - 50-60%
[2].

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(.) -
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[2].

44

Welch

Hewlett-Packard.

Statistica 6.0.

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(. . "

).

2 (25 (19) (Antares Cas-

cade) 8.49. (

Gold Flax (56.92% 8.25% -),

: 51.6 (), 55.7 (Glenelg), 59.1 (K-

6570), 65.1 (Liral Dominion).

2.7 8

(Antares, , -5627, Somme, Flanders, Liral Prince, Lirina, Liral

Dominin). 3 (, Cascade, Natasa) -

Gold Flax. , -

Gold Flax 43 (Liral

Dominion). (-

, Cascade, Natasa) , 40

2 -

3 . 3 11.3

(Antares, Raluca). "Antares" 19 , -

47-52% - 11-16% . 21 -

"Raluca" :

42-49% - 12-13% -

.

21 , -

(42-49% - , 12-13% , 23-26%), -

- , -

.

1. Oomah B.D. Processing of Flaxseed Fiber, Oil, Protein, and Lignan // Flaxseed in Human Nutrition, LU Thompson and SC Cunnane. AOCS Press, Champaign, Illinois, 2003, P. 363-386.

2. Johnston I. M., Johnston J. R.. Flaxseed Oil and the Power of Omega-3 // New Canaan: Keats Pub., 1990, P 49-65.

« « , »

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[1 – 3].

() [1,]

“Wistar” 130-150 .

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2,5; 5; 10; 20 30 /

(4) (3)

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(SH).

STATISTICA 6.0 (StatSoft Inc., USA).

2,5 – 5,0 /

4 3 1,45 – 5,24 1,75

(10,0 – 30,0 /)

42,2% 30,4 - 54,2%, -
 52,4 - 84,2%
 (10-30 /),
 14,0 - 23,2%, - 5 / .
 47,4 - 51,6% -10 20
 / , 32,9 - 86,8%
 SH 1,5 - 2,5 , 5, 10 30 /
 -
 , ,
 r=0,82; p<0,0001,) 3 4 (r=0,67; p<0,0001
 p=0,0002 r=-0,70; p<0,0001,). (r=-0,56;
 -
 3 4
 , ,
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 / ; -

1. Varghese S., Lakshmy P.S., O mmen O.V. Changes in lipid peroxidation and anti-oxidant enzyme activities by triiodothyronine (T3) and polyansaturated fatty acids (PUFA) in rat liver. // *Endocr. Res.*-2001.-Vol. 27, 4, P. 409 – 416.

2. Sarandol E., Tas S., Dirican M., Serdar Z. Oxidative stress and serum paraoxonase activity in experimental hypothyroidism: effect of vitamin E supplementation. // *Cell Biochem. Funct.*-2005.- Vol. 23. 1.-P. 1 – 8.

3. Mogulkoc R., Baltaci A.K., Oztekin E., Sivrikaya A. The effect of thyroxine administration on lipid peroxidation in different tissues of rats with hypothyroidism. // *Acta. Physiol. Hung.*- 2005.- Vol. 92, 1.- P. 39 – 46.

EFFECT OF METHIMAZOLE-INDUCED HYPOTHYROIDISM ON LIPID PEROXIDATION AND ANTIOXIDANT SYSTEM ACTIVITY IN RAT TISSUE

O.I. Valentsiukevich, L.I. Nadolnik

The effect of thyroid hormone deficiency on lipid peroxidation and rat liver antioxidant system activity was studied. Hypothyrosis progressing was accompanied by a pronounced response of the rat liver enzyme system to antioxidant defense.

01601, 9. E-mail: veliky@biochem.kiev.ua

(NO, O₂⁻, ONOO⁻)

() (-ADP-)

“Sigma” (7 /100), 15 / .

200 1 (14)

13,2 - 7,1 - 5 , -

98%
65%.

NADP⁺/NADPH NAD⁺/NADH
NADP⁺/NADPH 2,7

NAD⁺/NADH - 2,1 .

NADP⁺/NADPH
NAD⁺/NADH -

1

.
10, www.ibmc.msk.ru;²
125315,
niipharm@mail.ru

,119121

8. E-mail:

2-

:

6-

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80

/ /

(3-)

20

/ /

10

(2D-PAGE)

2D-

Melanie III.

(~3 mm³)

2D-

PAGE

c

Reflex III MALDI-TOF (Bruker, USA).

2D-

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2D-

Melanie III

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cyt-k2),

897.

MALDI-TOF-

80

33

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II

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1,

2,

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FDH,

3-

6

1.

2.

3-

1

3-

PARK 7.

PARK 7

3-

PARK 7.

HSP70

3-

PROTEOMIC ANALYSIS IN BIOTRANSFORMATION TRAITS OF XENOBIOTICS

Viglinskaya A.²

¹*V.N. Orekhovich Institute of Biomedical Chemistry RAMS, Moscow, Russia;* ²*State Zakusov Research Institute of Pharmacology RAMS*

In this study proteomes of liver samples were analyzed after administration of phenobarbital (PB) or 3-methylcholantrene (3-MC) to mice. Liver cell homogenates were subfractionated by differential ultracentrifugation into cytosol and microsomes. Cytosolic fractions were subjected to 2-DE to generate the proteomic maps of it. 2-DE yielded 897 protein spots for cytosol. General trends of the fraction-specific alterations after 3-MC or PB treatment were evaluated using the Student's t-test and the principal component analysis (PCA). According to the PCA-derived data on the cytosol, the specificities of 3-MC- and PB-induced responses could be clearly distinguished from each other. Protein spots, whose expression levels differed from control, were identified by MALDI-TOF PMF. Proteomic studies such as those reported herein can be useful in studying biotransformation traits, including identifying the molecular-based toxicity of lead drug candidates.

-450-

()

1 1 2 2
3 1

¹ , 220141

^{5/2} E-mail kiselev@iboch.bas-net.by;

² , 220012 , ² E-mail: cbg@it.org.by;

¹ , 10098 , ²⁰⁻²¹ E-mail
dieter.schwarz@charite.de

() (()) -
r-7,t-8- -t-9,10-
- () , 2.

() 2 -
-4501 1 (CYP1a1) . -

CYP1a1. , -

, , , -

-
 () .
 CYP1a1
 - CYP1a1 (T461N) CYP1a1 (I462V).
 () , 7- (±)-trans-7,8-
 -7,8- () (7,8-). ()
 2
 IC₅₀
 Sigma Plot
 2001
 7,8-
 2

	IC ₅₀ ()	i ()	
CYP1a1	1,6±0,3	2,0±0,4	
CYP 1a1 (T461N)	4,4±0,5	6,4±0,6	
CYP 1a1 (I462V)	7,0±1,0	9,3±2,4	

, CYP1a1
 (<0,01),
 IC₅₀ i 1,6÷7,0 2,0÷9,3
 (IC₅₀>100).

, 125315, .
 , . 8. E-mail: niipharm@mail.ru

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 « ». -
 2. -
 3. (5
 /) 30 .
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 1. :
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) MR
 MNRA 30 .
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PHARMACOGENETIC STUDYING OF CENTRAL MECHANISMS OF ACTION OF THE NOVEL SELECTIVE ANXIOLYTIC AFOBAZOL

Voronin M., Yarkova M.

State Research Institute of Pharmacology of RAMS, Moscow, Russia

PANTOEA AGGLOMERANS

, 220050,

, 4. E-mail: dimgal200@rambler.ru

agglomerans

Pantoea

(*crtE*).

crtE

1-31,

pUC18

P. Agglomerans 206[1].

[2].

AutoRead Sequencing Kit Amersham Pharmacia Biotech,
pUC18.

ALF xpress

II (Amersham Pharmacia Biotech) -
ALFwin Sequence Analyser 2.10. -

BLAST 2. -

P. Agglomerans 206 (,
), *P. Agglomerans*
206 *crtZ*(-) *P.*
Agglomerans 1' (,).

LB (25 / , -
). 40-60 [3],
461 .

G-250 .
7 , 1-31 -
P. Agglomerans 206 0,4 2 . . . *crtE* -

Pst , 2 . . . , *crtE P. agglomerans.* -
pUC18, *P. Ag-*

glomerans 206, *P. Agglomerans* 206 *crtZ* *P. Agglomerans* 1' -

(*P. Agglomer-*
ans 206- pUC-*crtE*, *P. Agglomerans* 206 *crtZ*- pUC-*crtE* *P. Agglomerans* 1'-
pUC-*crtE*). -

1. -
crtE -

40%. -
P. agglomerans 1', , -
, , -
. *crtE* -

1.

P. agglomerans

	<i>P. agglomerans</i>		%
1	206	0,905±0,056	-
2	206- pUC- <i>crtE</i>	1,235±0,153	137
3	206 <i>crtZ</i>	0,619±0,104	-
4	206 <i>crtZ</i> -pUC- <i>crtE</i>	0,906±0,086	146
5	1'	0,445±0,041	-
6	1'- pUC- <i>crtE</i>	0,490±0,121	110

P. agglomerans 206- pUC-*crtE*, *P. Agglomerans* 206 *crtZ* - pUC-*crtE* *P. Agglomerans* 1'- pUC-*crtE*, *P. Agglomerans crtE*

40%.

1.

Pantoea agglomerans 206 *E.coli* HB101. //

2006. - 5. - 40 - 43.

2.

, 1984. - 480.

3. Hundle B.S., Beyer P., Kleinig H., Englert G., Hearst J.E. Carotenoids of *Erwinia herbicola* and an *Escherichia coli* HB101 strain carrying the *Erwinia herbicola* carotenoid gene cluster// J. Photochemistry and Photobiology. – 1991. – Vol. 54. - No 1. – pp. 89-93.

THE INFLUENCE OF INCREASED DOSAGE OF GERANYLGERANYL DIPHOSPHATE SYNTHASE'S GENE ON PRODUCTION OF CAROTENOID PIGMENTS IN *PANTOEA AGGLOMERANS* STRAINS

Galimovsky D.V.

Belarussian State University, Minsk

In this work we administered plasmid pUC-*crtE* carrying genes of geranylgeranyl diphosphate synthase into bacterial strains of *P. agglomerans* 206, *P. agglomerans* 206 *crtZ* and *P. agglomerans* 1' (producing zeaxanthin, -carotene and lycopene, accordingly). In the presence of the pUC-*crtE* plasmid production of zeaxanthin and -carotene increased by 40% while for lycopene we observed only a minor increase of production.

His : 1) (His, Arg)
(Tyr, Thr, Gln) R- ; 2)
 β -Ala Tau.

**THE INFLUENCE OF THIOPHOSPHORIC DERIVATIVES OF
ALKALOIDS OF CHELIDONIUM MAJUS L. ON BLOOD PLASMA
AND ERYTHROCYTE AMINO ACID POOLS IN CANCER**

Glazev A.A.

*Laboratory of Biochemistry of Biologically Active Substances, Grodno State
University, Belarus*

, 47/5,
. E-mail: YuDadali@yandex.ru

13- -4- -2,4,6-down-

Bcl-2 Bcl-x1 HL-60

-43 gap-junction

: 1)

(); 2)

(); 3)

(); 4)

p-53 (); 5)

CYP 3A4 (B1 -), CYP A1 () CYP

C19 (); 6)

(); 7)

; 8)

B (); 9)

NF - kB ; 10)

().

BIOCHEMICAL FUNCTIONS OF ANTIOXIDANTS THAT ARE INDEPENDENT FROM ANTIOXIDANT ACTIVITY

Vladimir A. Dadali, Yury V. Dadali
*I.I. Mechnikov's State Medical Academy, Piskarevsky, 47/5,
 St.-Petersburg, Russia, YuDadali@yandex.ru*

[2].

()

50% 29%

1,4 1,6

15 ;

20

1. // . 1996. . 41. . 3. . 620 – 623.

2. // . 2006. . 142, 8. . 155-157.

ANTIOXIDANT ACTIVITY OF A TAXIFOLIN IN DEGENERATION OF RAT SCIATIC NERVE

Derinskaya E.V., Revin V.V., Bogdanov M.E.

N.P. Ogarev Mordovian State University, Saransk, Russia.

_____ 1' 1' '' 2' '' . ''
1 1 2
" 1 " " 2 " ,

()

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 - ()
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 , (2.7.1.34)
 .
 [³H]-
 («Sigma») -
 .
 , (3:1:1). -
 « » -
 «Aldrich» -
 .
 Bondapak C₁₈, 10 , 250 4 :
 - 20 , 5,0: (62:38).
 / , -
 u/ 1,5 -
 .
 Wistar (,) -
 45- -
 , . -
 [1], -
 () . -
 - (24 , 30 30 , 1, 2 -
) 200 / . -
 - () -
 . -
 : -4'- [2] -
 [³H]- . -
 0,58±0,03 / / , 0,91±0,06

$0,67 \pm 0,04$ // () $1,36 \pm 0,05$ // (-
), $<0,05$). $0,32 \pm 0,03$, $0,49 \pm 0,06$ -
 , $[^3\text{H}]$ - -
 , -
 , -
 . -

1. Gulyaeva N. et al. // Tongue protrusion: a simple test for neurological recovery in rats following focal cerebral ischemia. – J. of Neuroscience Methods. – 2003. – Vol.125. – P.183-193.

2. . . , . . . , . . . // -
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 . . . – 1984. – . 30, . 1. – .131-132.

SUBSTRATE SYNTHESIS AND STUDIES ON PANTETHEINE KINASE ACTIVITY TO ASSESS COENZYME A BIOSYNTHESIS IN THE CEREBELLUM OF RATS WITH FOCAL BRAIN ISCHEMIA

Dorofey D.S., Petukhova T.P., Yevkovich I.N., Gurinovich V.A., Badun G.A.¹,
 Tyasto Z.A.¹, Gulyaeva N.V.², Moiseenok A.G.

Institute of Pharmacology and Biochemistry, NAS of Belarus, Belar-
rus;¹M.Lomonosov Moscow State University, Russia;²Institute of Higher Nerv-
ous Activity and Neurophysiology, RAS, Russia

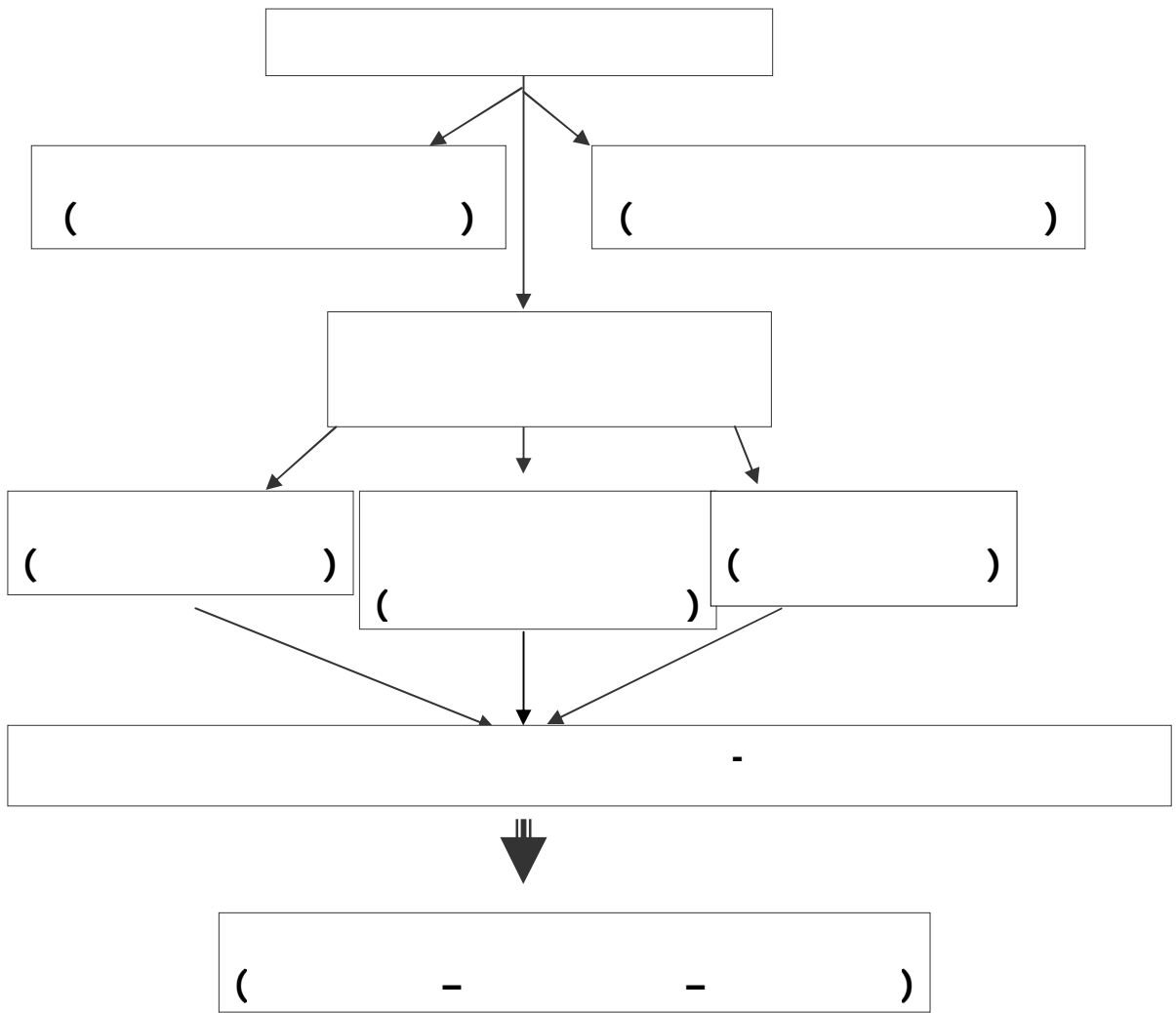
Tritium thermal activation was used to synthesize [³H]-pantetheine with specific radioactivity of 1.5 Ci/mmol which was assayed by HPLC at the final stage. The substance was applied to study pantetheine kinase activity in the cerebellum of rats with a model of middle brain artery. Increased enzyme activity in ischemic animals and further growth of this activity were shown after D-panthenol administration to ischemic animals.

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Summary

Problems of sustainable development in connection with change of biogeochemical cycle of selenium and overcoming its deficiency in Russia, Belarus',



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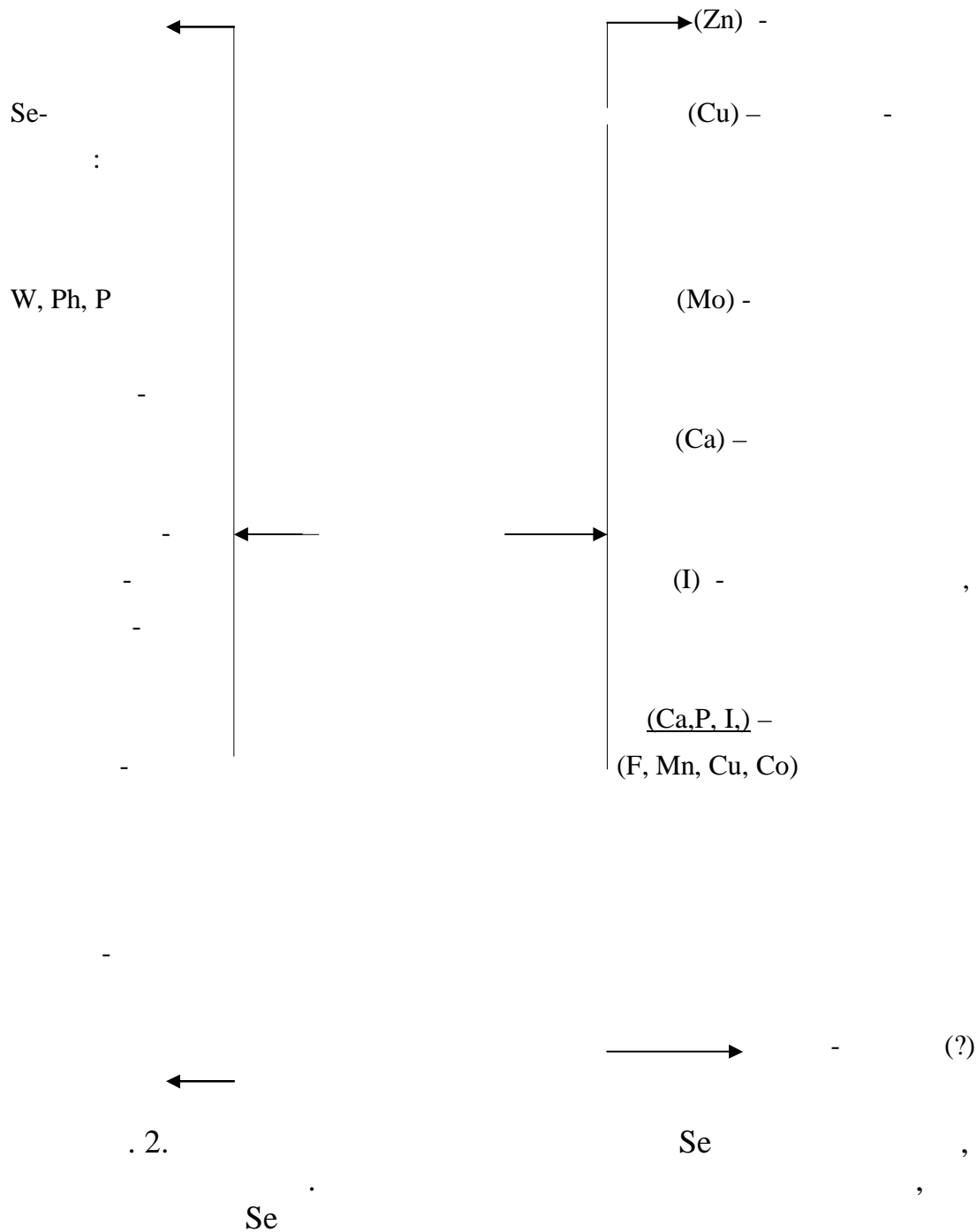
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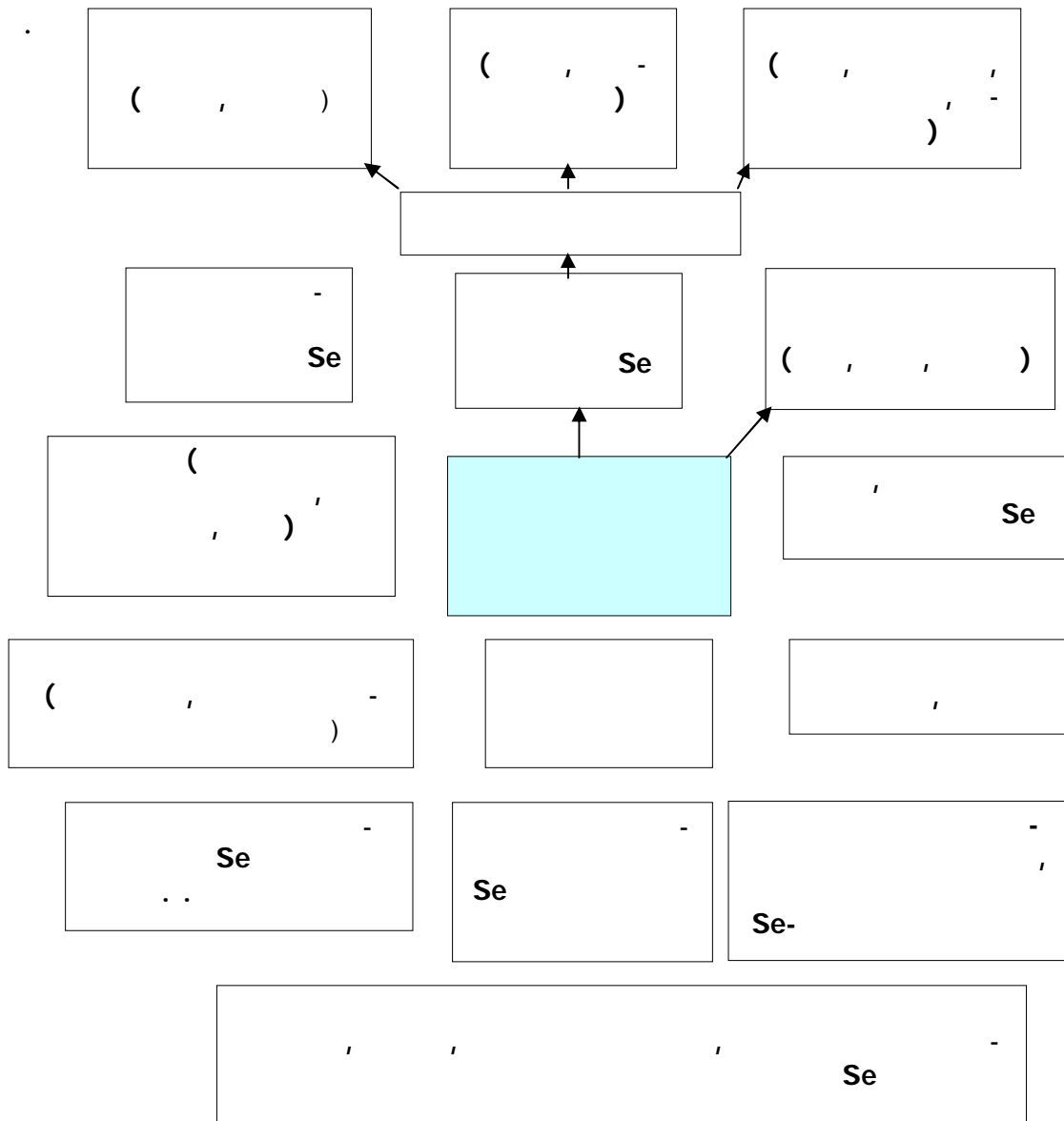
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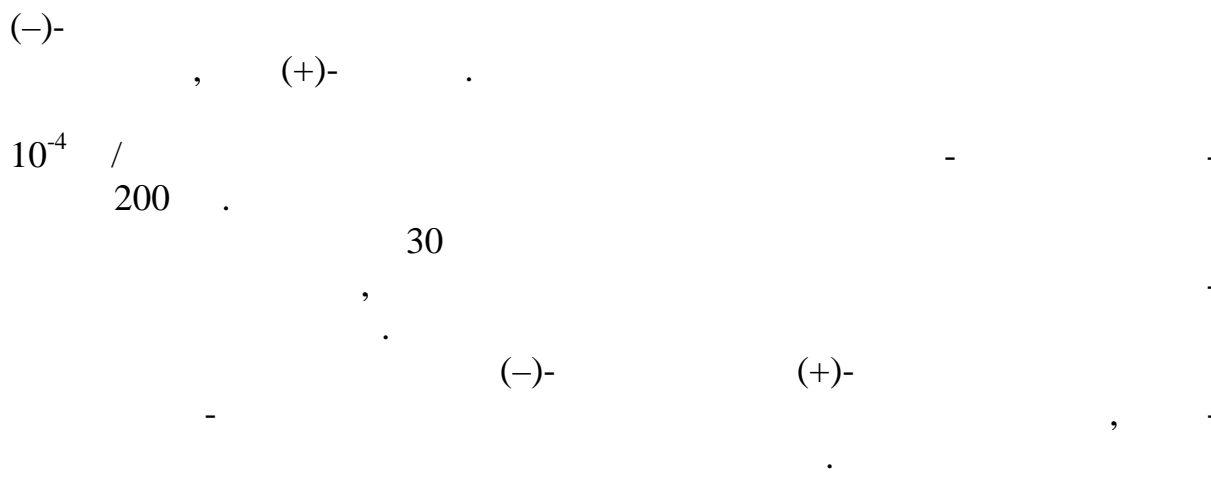
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STUDYING OF RADIOPROTECTIVE PROPERTIES OF BIOFLAVONOIDS UNDER THE GAMMA- AND UV-IRRADIATION OF DNA SOLUTIONS

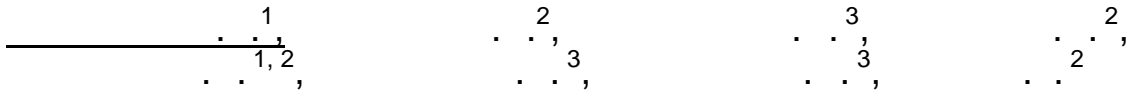
Ershov D.S., Paston S.V., Zyrianova I.M., Kasyanenko N.A.
St-Petersburg State University, Department of Physics

_____ , 125315, 8. e-mail: zhanataev_ak@umail.ru

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VKORC1

G3673A

CYP2C9*1/*1



(109240 , , 11, 23, dimasychev@mail.ru)

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THE *VKORC1* GENE *3673* POLYMORPHISM IS ASSOCIATED WITH HAEMORRHAGE IN *CYP2C9*1/*1* PATIENTS APPLYING INDIRECT ANTICOAGULANT (COUMARIN DERIVATIVE) WARFARIN

Zagorskaya V.L.¹, Ignat'ev I.V.², Cropacheva E.S.³, Kazakov R.E.², Sychev D.A.^{1,2}, Mihaeva Y.A.³, Panchenko E.P.³, Kukes V.G.²

Department of clinical pharmacology chair, Sechenov's Moscow Medical Academy, Moscow, Russia (dimasychev@mail.ru)
Institute of Clinical Pharmacology NC ESMP, Moscow, Russia
Myasnikov's Institute of clinical cardiology, Moscow, Russia

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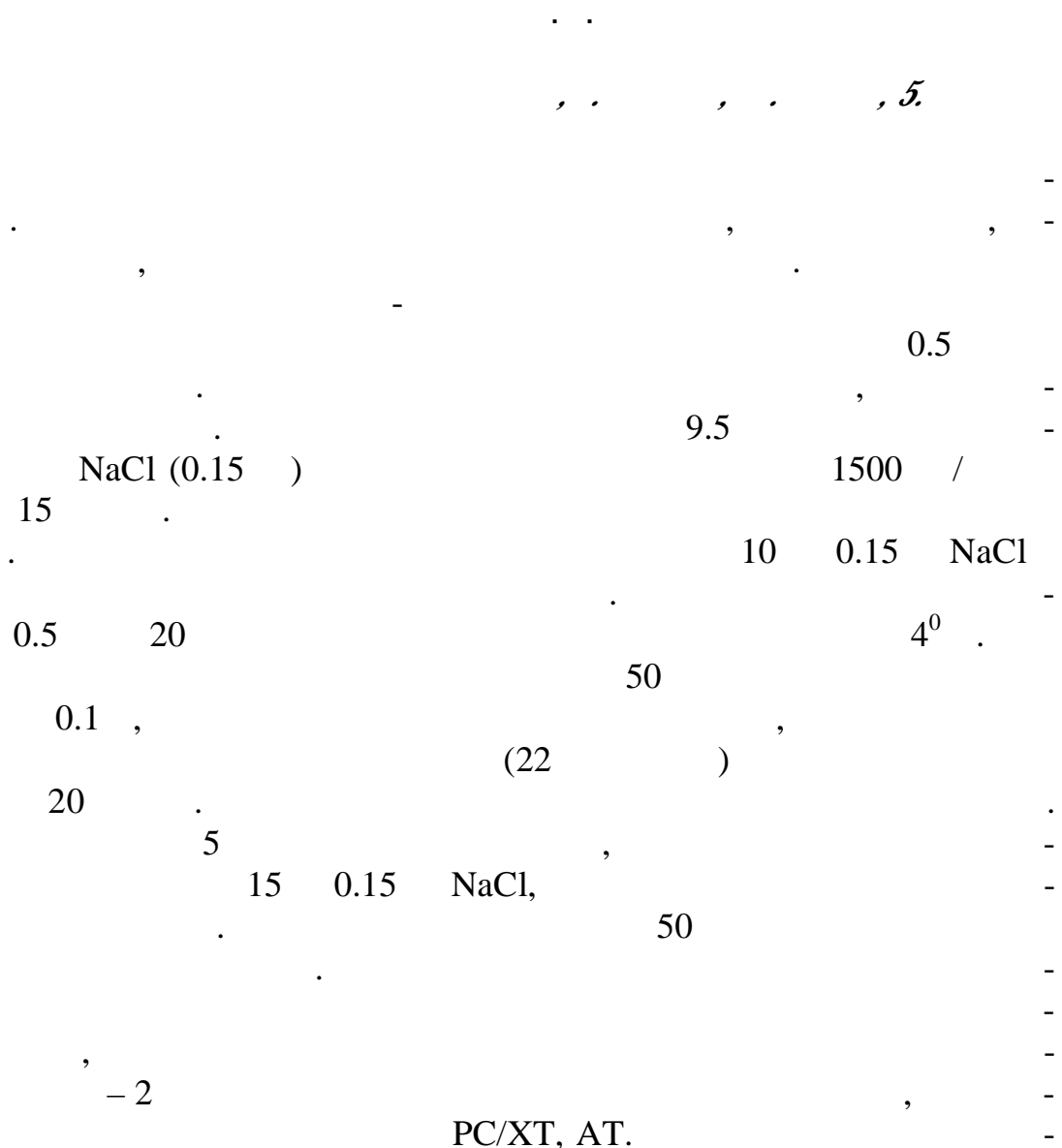
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**CHANGES IN BRAIN PROLINE SPECIFIC PEPTIDASES DURING
DEVELOPING EXPERIMENTAL TOLERANCE TO PSYCHOTROPIC
AGENTS**

*Zolotov N.N., Nazarova G.A., Kraineva V.A., Garibova T.L., Voronina T.A.
Zakusov Institute of Pharmacology RAMS, 125315. Baltyiskaya str., 8. Moscow,
Russia*



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2	31.7	973	32.5	906	19.97	760	27.09	666
3					15.06	933	59.11	933

$$\sum_{i=1}^n S_i \cdot T_{50\%} = const, \quad i -$$

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i-

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$$T_{50\%} = \sum_{i=1}^n T_{50\%} p_i$$

$$p_i = \frac{S_i T_{50\%}}{\sum_{i=1}^n S_i T_{50\%}}$$

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2	76,3	595,23		55.4	238		
3				18.2	428		

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**EXPERIMENTAL INVESTIGATION OF FLAMMULINA VELUTIPES
EFFECT ON MICE WITH CTC-INDUCED LIVER INJURY**

Kadukova E.M., Lukovskaya N.D., Petrenev D.R., Goncharov S.V., Savin A.O.,
Sushko S.N., Trukhonovets V.V., Malenchenko A.F.

Institute of Radiobiology, NAS Belarus, Forest Institute, NAS of Belarus

The aim of this study was to investigate the protective effects of administration of *Flammulina velutipes* extract on mice with carbon tetrachloride-induced hepatic fibrosis.

VELUTIPES

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**ESTIMATE OF BIOLOGICAL EFFECTS OF FLAMMULINA
VELUTIPES, AS A SOURCE OF ADAPTOGENES**

Kadukova E.M., Sushko S.N., Trukhonovets V.V.

Institute of Radiobiology, NAS of Belarus, Forest Institute, f NAS of Belarus

Medicinal fungi contain a unique complex of substances with a wide range of biological activities. In this study showed that *Flammulina velutipes* possesses antitumour activity.

LYMNAEA

STAGNALIS

, E-mail: niltherm@bsu.by

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[Regan, Guo, 1999].

[Janaki et al., 2000].

Lymnaea stagnalis,

[Moroz et al., 1993; , 1996].

Lymnaea stagnalis

(1972).

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Lymnaea stagnalis.

INFLUENCE OF REDUCED GLUTATHIONE ON DEFENSIVE REFLEXES OF LYMNAEA STAGNALIS

Kazakevich V.

Belarussian State University, Department of Physiology

In ethological experiments showed that reduced glutathione facilitated the defensive responses of snail Lymnaea stagnalis. This effect was presumably due to glutathione capability for modulating glutamatergic neurotransmission.

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 Friedlander, 1999].

HAEMOGLOBIN PREVENTS FROM BRAIN ACTIVATION BY PICROTOXIN

Kazakevich V., Yakubovskaya G.

Belarussian State University, Department of Physiology

Subdural application of haemoglobin inhibits the excitation of frontoparietal somatosensory cortex of rats by an analeptic dose of picrotoxin. This effect was probably due to haemoglobin capability for binding endogenous nitric oxide.

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 0,62±0,05 / , 0,55±0,01
 /c. 620±73 . .
 972±102 . . (<0,05).
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1. Buckwalter JB, Taylor JC, Hamann JJ, Clifford PS. Role of nitric oxide in exercise sympatholysis. J Appl Physiol. 2004 Jul;97(1):417-23.
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CONTRIBUTION OF NITRIC MONOXIDE DEPENDENT SEGMENTAL MECHANISMS TO DISTENDING REFLEX REALIZATION IN THE SMALL INTESTINE

Karavay T.V., Chumak A.G.
Belarusian State University

Nitric monoxide donor subdural administration (Th₈-Th₁₀) resulted in increasing intestinal smooth muscles action potentials and in reduction of “slow waves” area. Thus, intrathecal nitric monoxide reversibly, dose-dependently depressed distending reflex development in the small intestine.

: 461N- I462V-

¹ _____, ¹ ³, ¹ ⁴, ²,
¹ ^{5/2}, E-mail *kiselev@iboch.bas-net.by*, ² ²²⁰¹⁴¹,
³ ¹⁰, E-mail *schunck@mdc-berlin.de*, ⁴ ¹³¹²⁵,
¹⁰⁰⁹⁸, ²⁰⁻²¹, E-mail *dieter.schwarz@charite.de*

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CYP1A1

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CYP1A1

		K_m ()	V_{max} ($\mu\text{mol} \cdot \text{min}^{-1}$)
CYP1A1	6 -	$17,1 \pm 3,0$	$16,4 \pm 1,5$
	16 -	$16,7 \pm 2,5$	$7,7 \pm 0,6$
CYP1A1(I462V)	6 -	$24,3 \pm 5,0$	$17,2 \pm 1,7$
	16 -	$17,5 \pm 1,6$	$8,8 \pm 0,4$
CYP1A1(T461N)	6 -	$60,9 \pm 10,4$	$39,0 \pm 4,3$
	16 -	$46,3 \pm 7,9$	$17,0 \pm 1,7$

. 2.

CYP1A1

		K_m ()	V_{max} ($\mu\text{mol} \cdot \text{min}^{-1}$)
CYP1A1	6 -	$10,1 \pm 2,8$	$14,8 \pm 1,6$
CYP1A1(I462V)	6 -	$6,0 \pm 1,5$	$9,9 \pm 0,7$
CYP1A1(T461N)	6 -	$14,3 \pm 2,2$	$17,0 \pm 1,0$

1. Nebert D.W., Ingelman-Sundberg M., Daly A.K. Genetic epidemiology of environmental toxicity and cancer susceptibility: human allelic polymorphisms in drug-metabolizing enzyme genes, their functional importance, and nomenclature issues // Drug. Metab. Rev. - 1999.- V. 31, - P. 467-487

**EFFECT OF POLYMORPHIC VARIANTS OF HUMAN
CYTOCHROME P4501A1: T461N- AND I462V-REPLACEMENTS ON
STEROIDHYDROXYLAZE ENZYME ACTIVITY**

Kisselev P.A.¹, Bovdey N.A.¹, Kisseleva C.N.¹, Boidol W.², Schunck W.-H.³,
Schwarz D.⁴

¹*Institute of Bioorganic Chemistry, Academy of Sciences Belarus,* ²*Schering AG,*
³*Max Delbrueck Centrum for Molecular Medicine, Berlin-Buch,* ⁴*Institute of
Clinical Pharmacology, University Medical Centre Charite, Humboldt Univer-
sity of Berlin.*

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1. Kozlovski V.I., Chlopicki S., Gryglewski R.J., Effects of two beta-3 agonists, CGP 12177A and BRL 37344, on coronary flow and contractility in isolated guinea pig heart // Journal of Cardiovascular Pharmacology. – 2003. - Vol. 41 (5). – P. 706-713.

2. Félétou M., Vanhoutte P.M. The third pathway: endothelium-dependent hyperpolarization // J Physiol Pharmacol. – 1999. – Vol. 50 (4). – P. 525-534.

3. Tracey A., Bunton D., Irvine J., MacDonald A., Shaw A.M. Relaxation to bradykinin in bovine pulmonary supernumerary arteries can be mediated by both a nitric oxide-dependent and -independent mechanism // Br J Pharmacol. – 2002. – Vol. 137. – P. 538-544.

Summary. We studied the influence of oxidative stress induced by interaction of xanthine and xanthine oxidase in isolated guinea pig heart on endothelial vasodilator responses to bradykinin and acetylcholine. We found that infusion of xanthine oxidase in the presence of xanthine significantly potentiated bradykinin-induced coronary vasodilator reaction without a pronounced effect on the response to acetylcholine. This phenomenon is mediated via NO- and prostacyclin-independent mechanisms, probably endothelium-derived hyperpolarizing factor (EDHF).

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EFFECTS OF BIOLOGICALLY ACTIVE SUBSTANCE ON IRRADIATED MALE RAT REPRODUCTIVE SYSTEM

Konoplya E.F., Vereschhako G.G., Khodosovskaya A.M.
*Institute of Radiobiology of the National Academy of Sciences of Belarus,
 Gomel, State University of Belarus, Biological Department, Minsk*

125315,
e-mail: makonstant.24@mail.ru

[1], -101 (Ph/CH2/4-CO-Gly-L-Trp-NH2) - 0,05-0,2 / [2].

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1. Gonzales Bosc L.V., Kurnjek M.L., Muller A. et al. Effect of chronic angiotensin II inhibition on the nitric oxide synthase in normal rat. *Hypertension*. - 2001.-19(8). - P.1403-1409


2. Kobayashi O., Miwa H., Watanabe S. et al. Cyclooxygenase-2 downregulates inducible nitric oxide synthase in rat intestinal epithelial cells. *Am J Physiol Gastrointest Liver Physiol*. -2001.-281, 3.- G.688-696.

ACE INHIBITOR ENALAPRIL ACTION ON NITRIC OXIDE SYNTHESIS IN RAT EXPERIMENTAL DIABETES MELLITUS

Korkach Ju.P.¹, Kotsuruba A.V.¹, Prisyazhna O.D.², Sagach V.F.²

¹ – *O.V. Palladin Institute of Biochemistry National Academy of Sciences of Ukraine, Kiev, e-mail: ruba@biochem.kiev.ua*, ² – *O.O. Bogomolets Institute of Physiology National Academy of Sciences of Ukraine, Kiev*

We studied the activities of the two NO synthase (NOS) isoforms, inducible (iNOS) and constitutive (cNOS), the activities of arginase and nitrate reductase and the content of high-molecular-weight nitrosothiols (HMNT) and low-molecular weight nitrosothiols (LMNT) and stable metabolites of NO (NO_2^- , NO_3^-). This endothelial dysfunction depends on the high activity of arginase, iNOS and salvage (by nitrate reductase) NO synthesis, both reactive oxygen species (ROS) (by xanthine oxidase), as well as on the low activity of constitutents (eNOS, nNOS) NO synthesis. Angiotensin-converting enzyme inhibitor (enalapril) administration (20 mg/kg, 30 days) upregulated constitutive NO synthesis by reducing the activities of arginase, iNOS, nitrate reductase and ROS in streptozotocin-induced diabetes mellitus (type I). The results obtained suggest new roles for the renin-angiotensin system in NO synthesis and vascular tone regulation. Enalapril might serve as a novel tool to prevent NO-associated endothelial dysfunction.


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1. // Hyp. Med. J.-1993. - 1, 1. - . 5-8.
 2. O.D. Prysyzhna, A.V.Kotsyruba, C.A. Talanov, V.F. Sagach. Normalizing influence of interval hypoxia training on the function of endothelium at experimental diabetes mellitus // Fiziol Zh. 2007.-53, 1.- .3-6. Ukrainian.

CHANGES IN NITRIC OXIDE STABLE METABOLITES AND REACTIVE OXYGEN SPECIES IN HIGH-MOUNTAINS IN STREPTOZOTOCIN-INDUCED DIABETES MELLITUS

Korkach Ju.P.¹, Kotsuruba A.V.¹, Prysyzhna O.D.², Sagach V.F.²

¹ – *O. V. Palladin Institute of Biochemistry National Academy of Sciences of Ukraine, Kiev;* ² – *O. O. Bogomolets Institute of Physiology National Academy of Sciences of Ukraine, Kiev*

The investigation was designed to study the changes of reactive oxygen and nitrogen species in streptozotocin-induced diabetes mellitus (type I) under condition of high-mountains. Under such conditions (in high-mountains) there was no development of hyperglycemia and oxidizing stress in rat diabetes mellitus, the content of stable metabolites nitrite (NO₂⁻) and nitrate (NO₃⁻) increased in the heart and the activity of nitrate reductase was reduced both in the heart and in aorta. Thus, the action of high-mountains involves diminution of hyperglycemia, decline of reactive oxygen and nitrogen species, thereby upregulating constitutive NO synthesis in rats with experimental diabetes.

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al., 2005]. [Adams H. et

(), NO- (NOS) « » [., 2001].

1975],
 () [Glavind G., 1963], Fe²⁺-
 () [Bromont C. Et al., 1989].

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2, E-mail: 401_behavdpt@bk.ru

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3. - 1988. - 8 - . 170-172. , 1980, 2038.

EVALUATION OF THE INFLUENCE OF STRESS OF VARYING INTENSITIES ON EXTRAPOLATIVE BEHAVIOUR OF WISTAR RATS

Kravchenko E.V., Zhebrakova I.V.

SI SPC «Institute of Pharmacology and Biochemistry, NAS of Belarus»

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THE INFLUENCE OF GINSENG EXTRACT ON EFFICIENCY OF OPERANT ACTIVITY IN WISTAR RATS WITH DIFFERENT LEVELS OF ANXIETY

Kravchenko E.V., Sinkevich N.M.

The Institute of Pharmacology and Biochemistry of the National Academy of Sciences of Belarus

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28, E-mail: biblio@fizio.bas-net.by

[1],

33,6% [2].

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 133,3%, < 0,05. -
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 2000 . . 2001. . 323 - 326.

INFLUENCE OF ASCITIC FLUID AND OVALALBUMIN COMPLEX IMMUNIZATION ON TUMOR DEVELOPMENT IN MICE LUNG

G.V.Kraskovsky, T.I.Tsiarpinskaja, G.I.Mironova

Institute of Physiology, National Academy of Sciences of Belarus, Minsk

Administration of ascitic fluid of hepatoma 22a incompletely undifferentiating tumor and ovalalbumin xenogeneic antigen during latent period of tumor formation in mice results in prevention of spontaneous hereditary lung tumor development and suppresses Erlich's ascites carcinoma ascitic fluid tumor formation increase.

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**INFLUENCE OF TUBERCULINE OR BCG WITH ASCITIC FLUID
COMPLEX IMMUNIZATION ON GROWTH OF
HOMOLOGOUS AND NON-HOMOLOGOUS TUMOR**

Kraskovsky G.V., Tsiarpinskaja T.I., Mironova G.I.

Institute of Physiology, National Academy of Sciences of Belarus, Minsk

Administration of tuberculine, live and boiling-killed BCG alone and with Erlich's carcinoma ascitic fluid resulted in homologous tumor growth acceleration in mice. Tuberculine and ascitic fluid with BCG complex have a more pronounced effect. No effects of tuberculine, live and boiling-killed BCG with Erlich's carcinoma ascitic fluid complex on hepatoma 22a growth were revealed.

NSC-

531570 (UKRAIN®)

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, E-mail: Liza.1981@mail.ru

[1].

NSC-531570

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1. Ukrain® (.) . - : , 2000. -290 .
2. , 1992 .
3. : , 2000. - 221 .

PREPARATION NSC-53157 (UKRAIN®):THE BIOLOGICAL MECHANISMS OF ANTINEOPLASTIC EFFECT.

Kul N.

*Laboratory of Biochemistry of Biologically Active Substances,
Grodno State University, Belarus*

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9, 01601, , , kuchmeb@yahoo.com;²
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laura_mkhitaryan@ukr.net

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**EFFECT OF COMPLEX OF PRECURSORS AND MODULATORS
OF COENZYME Q BIOSYNTHESIS UNDER ADRIAMYCIN-INDUCED
OXIDATIVE STRESS**

Kuchmenko E.B.¹, Petukhov D.N.¹, Donchenko G.V.¹, Mkhitarian L.S.²,
Evstratova I.N.², Vasilinchuk N.N.²

¹Palladin Institute of Biochemistry of the NAS of Ukraine, 9 Leontovicha str., 01601, Kyiv, Ukraine, kuchmeb@yahoo.com; ²National Scientific Center "N.D. Strazhesko Institute of Cardiology", AMS of Ukraine, 5 Narodnogo opolchennya str., 03151, Kyiv, Ukraine, laura_mkhitarian@ukr.net

9, 01601 , , *E-mail: kuch@biochem.kiev.ua*

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-ADP-

1

o -ADP-

o -ADP-

1

60 /

18,5 /

(NAm, 100 / c), -

(-LA, 40 /) per os - o o (- , 15 /) 14 .

o (ADP-) ()

ADP- [U-¹⁴C]NAD⁺

, NAD⁺

(GSH)

23,5±2,9% (p<0.05)

(2)

21.0±1.8% (p<0.05),

4.9

NAD⁺,

-ADP-

29,5;

33,4; 40,75%

, p<0.05.

GSH

12-15%

, α-LA

. α-

NAD⁺

NAm

(3.1±0.4

4.3±0.5

10⁻⁸

, p<0.05),

α-LA α-T

3.4±0.3

3.8±0.3

, p<0.05.

NAm -LA

GSH)

-ADP-

α-T

NAm, α-LA

NAm α-LA,

NADPH NAD⁺,

α-T,

**CENTRAL NERVOUS SYSTEM IMPAIRMENTS ASSOCIATED
WITH EXPERIMENTAL DIABETES AND IMPLEMENTATION
OF ANTIOXIDATIVE THERAPY**

Kuchmerovska T.M., Shymanskyi I.A., Donchenko G.V., Suprun S. .,
Pakirbaieva L.V., Klimenko A.P.

*O. V. Palladin Institute of Biochemistry of the NAS of Ukraine, E-mail:
kuch@biochem.kiev.ua*

We estimated the effects of such free oxygen radical scavengers as nicotinamide, alpha-tocopherol, and alpha-lipoic acid as applied in doses to achieve a similar antioxidant effects on poly(ADP-ribose) polymerase activity. The findings suggest that brain disorders in diabetes are associated with increased oxidative stress which is, at least, responsible for DNA damage-mediated activation of poly(ADP-ribose) polymerase. A more efficient role of water-soluble vitamins, especially NAm, in down-regulation of PARP was established.

(75, 100, 125 150 /).

/	-	max /				$\cdot 10^3, \frac{1}{}$			
		Ca ²⁺	Mg ²⁺	Cu ²⁺		Ca ²⁺	Mg ²⁺	Cu ²⁺	
1.	-	8,33	20,0	9,98	2,94	4,6	4,0	2,0	0,37
2.	-	25,0	38,9	46,7	35,9	270	31,2	18,8	46,9
3.		4,4	12,5	2,5	25,0	10,0	12,0	9,0	50,0

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 // .-1999.- 2.- . 84-89.

SIDE EFFECTS OF ENTEROSORBENTS ACTIVITY

Lisenkova A.V., Philippova V.A., Prischepova L.V., Ignatenko V.A.

Gomel State Medical University, Belarus

Enterosorbents are widely used in the modern medicine for detoxification and treatment of such diseases as TB, CANCER, ASTHMA and AIDS. Side affects of their application are also quite evident. They bind and remove biometals and vitamins from the intestinal tract of patients.

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 1 “ ”
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280 ,

1 (1) - 23 (8) - 1 (7) ; 2 (2) -
(8) - (4) - (7) .

1,32 ± 0,27 “ ”

4,14 ± 0,55 , 2 - 6,43 ± 0,52 .

1 - 371,0 ± 20,0 , 2 - 412,3 ± 10,5
-1, 282,7 ± 17,8
(-1): -195,5 ± 12,7, 1 - 219,9 ± 4,2, 2 - 244,9 ±
7,7; -249,2 ± 15,7, 1 - 341,8 ± 7,9, 2 - 386,3 ± 20,9.

15-17 % , - 14-32, - 30%.

-1)

136,0 ± 13,2 121,0 ± 16,6 (1) 38,5 ± 4,6 (2),
- 153,2 ± 10,3 90,2 ± 10,8 (1) 55,8 ± 3,3 (2).

23-42%.

1. Makarchikov A.F., Lakaye B., Gulyai I.E., Czerniecki J., Coumans B., Wins P., Grisar T., Bettendorff L. Thiamine triphosphate and thiamine triphosphatase activities: from bacteria to mammals // *Cell. Mol. Life Sci.* – 2003. – Vol. 60. – P. 1477–1488.

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4. „...“
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– , 2007,

EFFECT OF SHORT-TERM HYPOXIA ON ACTIVITIES OF ENZYMES INVOLVED IN METABOLISM OF THIAMINE PHOSPHATE DERIVATIVES IN RAT TISSUES

Makarchikov A.F.^{1,2}, Gulyai I.E.¹, Rusina I.M.², Luchko T.L.¹, Makar E.A.¹, Kubyshin V.L.², Sivuk V.F.¹

¹*Institute of Pharmacology and Biochemistry, National Academy of Sciences of Belarus,* ²*Grodno State Agricultural University*

Short-term hypobaric hypoxia was shown to affect the activities of several enzymes involved in thiamine phosphate metabolism in rat tissues. It was found that 11-km height “rising-descending” of experimental animals resulted in increasing ThMPase as well as thiamine pyrophosphate kinase activities in the brain, liver and skeletal muscle. The activity of ThDPase was reduced in all the tissues studied, while that of soluble ThTPase was essentially unchanged.

12
 (<0.001).
 3,3 (p<0.001),

2,6 (<0.001),

1,7

12 13% (>0.05) 23% (p<0.01),
 2,5

(<0.001)

12

-S-

4 / ,
 -S- 28% (<0.001)

15

(2,6 , <0.001; 1,6 ,
 <0.001).
 4,4 (<0.001)

21% (p<0.05).

4,4 (p<0.001)
 -S-
 26%

(<0.001)

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1
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1, 2, 3, 3

246007, 4. *nikitsin@tut.by*,
 « 246040, 290. *rcrm@tut.by*,
 246012, 7.

Harris, Kalmus [1].

(«Sigma»,)

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4- 5- 198

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(96 , 4 -

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10,5; 6,4 5,6

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 - 41%, 30%, « » , 28,1 38,2 -
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1. Harris H., Kalmus H. //Ann. Eug. -1949. - Vol. 14, . 24-31.
 2. . . . 1971, . 84-88.
 3. Evans W. H., Kitchin F. D. Advans in Thyroid res. Oxford, 1961.

THE GENETIC ASPECT OF THYROID PATHOLOGY: SENSITIVITY TO PHENYLTHYOCARBAMIDE.

Malanchenko A.F., *Institute of Radiobiology, NAS of Belarus*
 Makhlina E.S., *Republican Research Centre of Radiation Medicine and Human Ecology*

Tatchihin V.V., Hlusova I.V., *Gomel ClinicalOncology Center*

The aim of the research was to reveal the associated connection between the gustatory sensitivity to phenylthiocarbamide (FTS) and thyroid pathology. The distribution of sensitivity to FTS was studied in 198 healthy people, 100 patients with autoimmune thyroiditis (AIT), 139 patients with nodular forms of endemic euthyroid goiter and 100 patients with thyroid cancer. A statistically significant decrease of the number of insensitive patients to FTS was seen in the group of thyroid cancer patients in comparison with the increase of the fraction of the sensitive patients in the group with AIT and nodular forms of endemic euthyroid goiter.

240 152%%,
70%,
(450 2 1) 42
26% (p<0.05).
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“ ”

**ON CORRELATION BETWEEN FUNCTIONAL CONDITION OF
CYTOCHROME P450-DEPENDENT MONOOXYGENASE AND THIA-
MINE STATUS IN HEALTHY RATS.**

Melnichenko N.G.

Institute of Pharmacology and Biochemistry, NASB

The effects of phenobarbital, isoniazide and caffeine on the catalytic activity of cytochrome P450 and thiamine status at rats were studied. It was shown that phenobarbital induced the greatest effect on the parameters investigated. It is proposed that long-term treatment by barbiturates can lead to “hidden” thiamine deficiency.

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80,
e-mail: patphys@grsmu.by

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26

200-250 , 2

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(n=9) 0,25

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(n=17)

E. Coli «Sigma» 0,4 /

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(20 /).

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(b), () ,

(bO₂), (P O₂), c

(S O₂), (O₂),

(Hb), (Met Hb) «Synthesis-15» (Instrumentation Laboratory Company).

:

(n=17, p<0,05), HbO₂ - 37%, (n=11, p<0,05), P O₂ 25%

(n=11, p<0,05), S O₂ - 24% (n=15, p<0,05), C O₂ - 16% (n=9, p<0,05),

b - 9,7% (n=17, p>0,05),

- Hb 23% (n=17, p>0,05) Met Hb - 31% (n=10, p>0,05).

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2. C . . . / .
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 22-24.

**TRANSPORT OF OXYGEN BY BLOOD IN MODEL OF INFEC-
 TIOUS PREGNANCY**

Milosh T.S., Maksimovich Ye.N.

*Grodno State Medical University, Pathophysiology Department, Grodno,
 Belarus, Gorky str., 80, e-mail: patphys@grsmu.by*

The aim was to study the transport of oxygen by blood in model of infec-
 tious pregnancy. Twenty-six albino pregnant rats administered with lipopoly-
 saccharides were used to study the parameters of oxygen transport. The distur-
 bances in some parameters of oxygen transport of oxygen can be a pathogenetic
 factor of perinatal pathology in infectious pregnancy.

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« « , , 230030, , 50, e-mail: »,
val@biochem.unibel.by

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[1].

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PHARMACONUTRIENTS IN ALIMENTARY SUPPORT OF THE ORGANISM

Moiseenok A.G.

*Institute of Pharmacology and Biochemistry, NAS of Belarus
(Grodno Branch); Grodno 230030, BLK, 50, e-mail:
val@biochem.unibel.by*

A review is given of current views of the role of nutritious support and application of pharmaconutrients in prevention and correction of the intestinal tract function and the feasibility of their extended use in extreme and sports medicine.

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USAGE OF ANTIOXIDANT SELENIUM-CONTAINING COMPLEX FOR CORRECTION OF DISTURBANCES IN THYROID FUNCTIONS

Nadolnik L.I., Lupachyk S.V., Chumachenko S.S.

Institute of Pharmacology and Biochemistry, National Academy of Sciences of Belarus, 50 Lenin Komsomol Blvd., 230030, Grodno, Belarus

The present study shows a protective effect of antioxidant complex (- tocopherol, - carotene, ascorbat and selenium (AOK-Se)) on thyroid metabolism of rats chronically exposure to stress, hypothyroidism and irradiation.

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-mail: ninh@mail.ru;

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1. // . 2003. .4, 1. .7-11.

THE ANTIOXIDANT STATUS AND MICROELEMENT HOMEOSTASIS IN PATIENTS WITH ALCOHOLIC AND DEGENERATION ENCEPHALOPATHY

Nechipurenko N.I.¹, Griboedova T.V.¹, Pashkouskaya I.D.¹,
Maslova G.T.², Buloychic G.I.²

¹Republican Research and Practical Center of Neurology and Neurosurgery, ²Byelorussian State University, Minsk

The aim of the investigation was to study the activities of superoxide dismutase, catalase, reduced glutathione, the levels of products reacting with thiobarbituric acid, ceruloplasmin, trace elements in blood and hairs of patients with alcoholic and degeneration encephalopathy. Variations in parameters of the antioxidant and microelement status were shown in two groups of patients with encephalopathy.

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*E-mail: Alekin1978@yandex.ru;*²
, 119234 . , *E-mail: vvl@soil.msu.ru*

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25 16
58±7,3 , - 17,

: 1181 , 1189 , 985 , 971 , 83 , 50 , 76 , 866 , 96
 , 60 , 355 , 346 , 1163 , 337 , 372 , 1198 , 385 .
 : 100 %
 , 100 %
 , 96%

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2. Voeikov V.L., Novikov C.N., Siuch N.I. Alterations in Luminol-enhanced chemiluminescence from nondiluted whole blood in the course of low-level laser therapy of angina pectoris patients. SPIE Proc. USA, 1997.

**POSSIBLE DIAGNOSTIC SIGNIFICANCE OF NONDILUTED
 WHOLE BLOOD CHEMILUMINESCENCE IN PATIENTS WITH OB-
 STRUCTIVE PULMONARY DISEASES.**

Novikov A.K.¹, Berdnikova N.G.¹, Voeikov V.L.², Lusina O.U.², Novikov
 K.N.², Kukes V.G.¹, Kukes I.V.¹

¹ *Clinical Pharmacology Department of the Scientific Center of Biomedical
 Technologies;*

² *Biological Faculty, Moscow State University, Russian Federation.*

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3 1 1,2
1,2

1 - (),
115088, . 5. 1. E-mail: health@ru21.ru;
2 - (), 119002,
3 - , 3. E-mail: nn_ivanets@bk.ru;
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[1].

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800

129 « » (63)
(66)

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12 « » (

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4,8% 6

82,5% 12 , 1,5%

57,6%, ,

97,6 206,3 / , 12 - 17,0 84,7 / ,

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33,2%

40,4% 54,5%,

28,2%.

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(*Inula sp.*)

2. 2229304 27.05.04. - 2004. - 8. - .21-27.

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9, yupark@biochem.kiev.ua

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1. / . 1975. . 8, . 87-96.
2. / . 1996. . 62, 2. . 3-15.
3. / . 2007, . 79, 3. . 35 – 42.

**USE OF A COMBINATION OF VITAMIN WITH OTHER
BIOLOGICALLY ACTIVE COMPOUNDS FOR NORMALIZATION OF
THE THIAMINE METABOLISM AT EXPERIMENTAL
ALCOHOLISM**

Parkhomenko Iu.M., Pylypchuk S.Iu., Sidorova A.A., Chehovskaya L.I.,
Stepanenko S.P., Donchenko G.V.

A. V. Palladin Institute of Biochemistry Ukrainian NAS

Under conditions of the chronic consumption of alcohol the decrease in nervous cells ability to bind thiamine and to synthesize thiamine diphosphate takes place, that leads to the deceleration of metabolic shuttle of thiamine derivatives in nervous cells and to other metabolic abnormalities. Vitamin administration to rats with experimental alcoholism resulted in partial restoration of thiamine-dependent parameters, while its combination with methionine, vitamins and β_1 exerted more profound normalizing effects even without a cancellation of the alcohol consumption.

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220050
4, galina_semenkova@yahoo.com;
220114
23;
Fritz Pregl Str. 3, Innsbruck 6020, Austria

7,8-

[1]
[2].
7,8-

[3].

7,8-

(FPV) Rostok (H7N1),

0,15

NaCl.

(/) (7,4) $(2,5 \cdot 10^{-4})$ $(1 \cdot 10^3 /)$, $(5 \cdot 10^{-5})$
 $-1 (/ ,)$.
 37 .

[3].

2,2,2- 1,4-

(II) (2- -4,4,5,5- -1- -3-

o) 2 ,

NO,

$(4,5 \cdot 10^{-5} /)$,

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7,8-
 4,5•10⁻⁵ /
 7,8-
 7,8-
 7,8-

1. Semenkov G.N., Razumovitch J.A., Cherenkevich, Fuchs D. Neopterin as regulator of functional activity of peripheral blood leukocytes // Pteridines. 2004. Vol. 12. 3. P. 63.
2. // , 2005, 2, 103-114.
3. // 1985. – 12. – . 688 – 690.

«
 , 43. E-mail: biochem@rniiap.ru»

[1].

NO,

. NO
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 NO
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 52 , 23 -
 36-37 (1-), 29 -
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 - (NO) NO [2].
 «Statistica 5.1» (StatSift.Inc.).
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RO₂ [3].
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1. 1991.-276 .
2. Gevara I., Iwanejko I. Determination of nitrite/nitrate in human biological material by the simple Griess reaction // Clin. Chim. Acta.- 1998.-v.274 (2).- .177-188.
3. « »,
2006.-556 .

GENERATION OF NITRIC OXIDE IN PLACENTA IN CASE OF INTRAUTERINE FETAL HYPOXIA AND ITS CORRECTION WITH ANTIOXIDANTS.

Pogorelova T.N., Krukier I.I., Drukker N.A

Research Institute of Obstetrics and Pediatrics, Rostov-on-Don, Russia

In case of placental insufficiency-induced intrauterine fetal hypoxia, enhanced nitric oxide generation in placenta was observed in full-term pregnancy and decrease one in case of premature birth. The use of Materna in placental insufficiency complex therapy leads to improvement of hemodynamic indices and nitric oxide cycle components.

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», 220009, . . . , 23,
E-mail: natavpr k penk @mail.ru

[1].

(-Glu-Trp) (-Glu-Trp) (« 10^{-12} - 10^{-3}
», - , (10^6 /),
(7,4) .

[2].

SFL-1211 ("Solar",).

((5 -10)
(10% - 17%)
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33%), - 10^{-12} / (48%). 10^{-3} / (30-60
 10^{-12} /
30-
 10^{-6} - 10^{-3} /
44%,
(34%)
()
 10^{-12} /

, 50, 230030,

, E-mail: office@biochem.unibel.by

NADH

in vitro,

NADH

[1].

()

NAD.

3].

, α -

3,5 / (/).

(250 / 500 /), (3.5 / ,
500 /), α - Na (125 / 250 /) (250 /

500 /) 30 , 100 / , α -
- 1,5 /

23-58%,

Na, 250 / (250 /)
Na (125 /),
0,5 4
α-
(1,5-2,5)
α-

1. Park S. Ch., Kim J. S., Han J.A., et al. Protective Effects of Aspartate and Other Amino Compounds on Ethanol Toxicity *In Vitro*. //Korean J. Biochem.-- 1994.- Vol.26.- 1. - .7-12.
2. Cuningham C.C., Preedy V.R., Paice A.G., Hesketh J.E., Peters T.J., Patel V.B., Volpi E., Mawatari K., Masaki H., Mori M., Torii K., 2001, Ethanol and protein metabolism, Alcohol Clin Exp Res, 25, 262S-268S.
3. Velvizhi S., Nagalashmi T., Essa M.M., Dakshayani K.B., Subramanian P., 2002, Effects of -ketoglutarate on lipid peroxidation and antioxidant stutus during chronic ethanol administration in Wistar rats, Pol J Pharmacol, 54, 231-236.

EFFECT OF KETOGLUTARATE, SUCCINATE, ASPARTATE AND GLUTAMINE ON ETHANOL METABOLISM AND ITS TOXICITY IN THE RAT

P.S. Pronko, L.R. Bardina, T.I. Khomich, V.I. Satanovskaya,
A.V. Gaishmanova and O.A. Borodich

Institute of Pharmacology and Biochemistry, National Academy of Sciences of Belarus, 50 Lenin Komsomol Blvd., 230030, Grodno, Belarus

The principal mechanism for ethanol elimination is its oxidation. The acceleration of ethanol oxidation by -ketoglutarate, sodium succinate, glutamine and aspartate can explain their counteraction to the hypnotic effect and toxicity of ethanol. The data obtained show that the compounds studied can be used in designing drugs to treat alcohol intoxication and poisoning as well as disorders of a postintoxication period.

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1,2 1,2

1 - , 115088,
2 - , . 5, . 1. E-mail: health@ru21.ru;
119002,
. 3. E-mail: nn_ivanets@bk.ru

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« »

[1].

18-40 52-
(HCV-Ab HBsAg),
(1,5 /),
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 (31,7%). -

11%.« -

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28%

« » -

36%. « » -

80% , -

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. [2, 3]. -

, « » -

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1. . . , 2006. - 512 . -

2. . . « » (RU21 green) -

3. - . - 2005.- 8.- .39-47. -

- :

« » (RU21 green). -

2006. - 10. - .58-64. -

220141, . . . , 5/2. E-mail: kisel@iboch.bas-net.by

() -

[1].

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[2].

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D.

6%

1
130

/ (2:3)

/ =2:3.

(35-57%)

[3].

VACCINIUM CORYMBOSUM L.

, 220012
2 , E-mail: hbc@bas-net.by, cbg@it.org.by

Vaccinium corymbosum L.,
(-) -
8 (Northblue, Weymouth,
Duke, Reka, Earliblue, Spartan, Puru, Nui), 4 (Northland,
Patriot, Toro, Jersey) 1 (Coville) -
Bluetta, Bluecrop u Elizabeth.

V.
corymbosum L. 25,8-29,2%, - 3,6-6,8%;
- 17,6-19,3%; - 2,1-4,5%; - 4,5-
7,7%, -1,2-2,8%; - 2,4-5,2%. -

V. corymbosum L.,
2,4 8,4.
()

25-52% Bluetta
Earliblue, Puru Nui
13-31,2%
Weymouth 38%

Northblue, Reka, Nui,
18-56%,
Bluetta 16-30%
37% 21-45% - Duke
19%, Weymouth

V. corymbosum L., North-
land, 7-10% Bluecrop

		43-180%			
Bluecrop				11-28%	31-37%
			Jersey		
			V. corymbosum L.	Coville	
8%	Elizabeth,				
58%					
	Coville		5%		
Elizabeth,			17%		
	Northblue, Weymouth, Duke, Toro, Jersey			Coville,	
	- Reka Northland.				

VARIETAL FEATURES OF THE CARBOHYDRATE COMPLEX OF VACCINIUM CORYMBOSUM L. FRUIT WHEN INTRODUCED IN BELARUS

Rupasova Zh.A., Varavina N.P., Rudakovskaya R.N., Kurlovich T.V.
State Scientific Institution Central Botanical Garden of NAS of Belarus

On the basis of a comparative research of the carbohydrate composition of fruit of 8 early-, 4 late- and 1 late-ripening *Vaccinium corymbosum* L. varieties recently introduced in Belarus and the corresponding released cultivars such as Bluetta, Bluecrop and Elizabeth, the taxons with the highest content of soluble sugars and pectins in their fruit have been found promising for introduction into culture.

VACCINIUM CORYMBOSUM L.

1 Vaccinium corymbosum L. -
 – Bluetta, Bluecrop u
 Elizabeth. -
 , .

**VARIETAL FEATURES OF THE BIOFLAVONOID COMPLEX OF
 VACCINIUM CORYMBOSUM L. FRUIT WHEN INTRODUCED IN
 BELARUS**

Rupasova Zh.A., Ignatenko V.A., Kurlovich T.V.
State Scientific Institution Central Botanical Garden of NAS of Belarus

On the basis of a comparative research of the bioflavonoid composition of fruit of 8 early-, 4 late- and 1 late-ripening *Vaccinium corymbosum* L. varieties recently introduced in Belarus and the corresponding released cultivars such as Bluetta, Bluecrop and Elizabeth, the taxons with the highest vitamin P value of their fruit have been found perspective for introduction into culture.

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.. , ..

- , 4, 220030, E-mail: bio@bsu.by, '

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 , (« »). -

(II, III) , -
 [1,2], -

» , NO. -

NO , -

· , , - ·

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(70 /) 19 .

(1 , 5) 0,1 100 (n=14). -

(Th₈-Th₁₀) -

(n=5). -

[3]. , -

5-50 , -

1,5-3 .

2-5 345±26 380±20 /

NO (10⁻⁶, 10⁻⁵, 10⁻⁴) -

0,1) 1-3 -

(100 %) 12 ± 2,5%, 41 ± 8% -

43 ± 11%, (P<0,05). NO -

2-4 (10) -

20%. NO -

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“ ” , -

NO -

07 -041.

1. Cervero, F. Pain and the spinal cord. In: Pain, eds. F. Cervero and T.S. Jensen. Handbook of Clinical Neurology, Vol. 81. Elsevier (Edinburgh), pp 77-92,- 2006.

2. // 75-
« »- 2001.-
.81-97.

3. .2005.- 1.- .90-96.

**NITRIC MONOOXIDE DONOR INFLUENCE UPON “WIND-UP”
PHENOMENON OF VISCERAL SYMPATHETIC EFFERENTS UNDER
NOCICEPTIVE STIMULATION.**

Rutkevich S.A., Chumak A.G.

Belarusian State University

The tetanic stimulation of sympathetic afferent inputs both visceral and somatic nerves resulted in recruitment of “slipping” efferents. Intrathecal administration of NO precursor sodium nitroprusside led to increase in tonic activity as well as in tetanic stimulation response. The findings suggest that NO is involved in neurochemical modulation of sympathetic preganglionic neurons “wind-up” phenomenon.

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. 109240,11. svetasere-
brova@mail.ru

(-gp),

[1, 3].

[2], -gp
90%

, - gp, : ; -
 18 (10 , 8 20
 41 (29,5 ± 6,4)) 12 (9 , 3
 21 37 (30,0 ± 5,8)) -
 () , -
 (in vitro - , Labor Diagnostika Nord GmbH &
 Co. KG, Nordhorn).
 0 208,33 / . : 1,80 – 7,50 / .
 0,5; 1; 1,5; 2; 2,5; 3; 4; 6
 20 -
 302 . -
 : -
 6,54 ± 3,86 / , 1
 159,76 / , -
 (208,33 /). (11 12) -
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 -
 Cmax (489±50 / 588±60 / -
), Tmax (1,72±0,07
 1,63±0,11), T1/2 (1,0±0,04
 1,2±0,2), MRT
 (mean residence time: 2,4±0,1 2,5±0,2
), Vz (34,9±3,5 -
 31,3±6,7). -
 -
 . / 1179 . / AUC(0-) (944±79
 / 18,2±1,5 /) CLt (23,7±1,8
 max/AUC(0-)
 0,512±0,021/ 0,493±0,03/ .
 f^{II} = 120,2% .

(1,25)
(f = 124,9%).

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1. Gawronska-Szklarz B. Effect of CYP2C19 and MDR1 polymorphisms on cure rate in patients with acid-related disorders with Helicobacter pylori infection. Eur J Clin Pharmacol 2005; 61(5-6): 375-9.

2. Hiraoka H. et al. Up-regulation of P-glycoprotein expression in small intestine under chronic serotonin-depleted conditions in rats. J Pharmacol Exp Ther 2005; 312(1): 248-55.

3. Nishimura M. Regulation of mRNA expression of MDR1, MRP1, MRP2 and MRP3 by prototypical microsomal enzyme inducers in primary cultures of human and rat hepatocytes. Drug Metab Pharmacokinet 2006; 21(4): 297-307.

PLASMA SEROTONIN AND PHARMACOKINETICS OF OME- PRAZOLE IN HEALTHY SUBJECTS AND IN PATIENTS WITH GAS- TRITIS

Serebrova S.Yu., Starodubtsev A.K., Kondratenko *Clinical Pharmacology
Department of the Scientific Center of Biomedical Technologies, Moscow,
Russia*

1, 2
1 « » ;
2 ,
(, 1990).
2004).
16-60 16915 (12003 , 4912 ,
1), 44 (2) 60 ,

3). 49 . (-
 - . -
 4.1.1483-03 - 4.1.1482-03,
 ELAN 9000 (Perkin Elmer,) -
 « ». -
 (- , -
) Microsoft Ex-
 cel XP Statistica 6.0. -
 , , -
 (11,55±1,74 /), (p<0,001) -
 (0,96±0,02 /). -
 (R =
 0,41 R = 0,43, , p<0,001),
 , , -
 : 25%
 82%, , . -
 1,36±0,11 / , , -
 (p<0,001).
 , 1- , 2-
 3- 0,98±0,06 / ,
 0,53±0,24 / 0,34±0,02 / (p<0,001) -
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1960-

(Anke, Rish, 1979; Juchheim, 1991; Katz, Chatt, 1988; Momcilovic et al., 2004; Pangborn, 1994, Passwater, ranton, 1983).

(Bass et al., 2001; Drasch, Roider, 2002; Haaranalyse in Medizin und Umwelt, 1987).

1988 . (Pb, Cd, Be) , (, 2006).

104 (<45 /) (1) , 100 (2) – 312 .
 (<165 /), 108 (3) – (<0,2 /).
 RDA), (~130% RDA) (~20%
 RDA). 6-10 (~215%

4.1.1482-03, 4.1.1483-03 -
 Optima 2000 DV ELAN 9000 (Perkin Elmer,)
 « » (.).

Microsoft Excel XP
 Statistica 6.0.

(Me = 29,76 / , X ± SEM = 33,19 ± 1,29 / vs. Me = 42,51 / , X ± SEM = 85,39 ± 15,73 / , p < 0,0001).

(p<0,0001), (p<0,001), (p<0,05) (p<0,1).

(Me = 0,13 / , X ± SEM = 0,14 ± 0,01 / vs, Me = 0,33 / , X ± SEM = 0,52 ± 0,08 / , p < 0,0001). 2

(Me = 144,3 / , X ± SEM = 139,0 ± 3,1 / vs, Me = 171,0 / , X ± SEM = 167,2 ± 4,9 / , p < 0,0001),
 (Me = 135,8 / , X ± SEM = 144,9 ± 4,13 / vs, Me = 146,3 / , X ± SEM = 165,6 ± 12,9 / , p < 0,01)
 (Me = 3,13 / , X ± SEM = 0,86 ± 1,28 / vs, Me = 0,48 / , X ± SEM = 1,54 ± 0,31 / , p < 0,05).

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 550 , -6000 , -12,2 , -120 , ₁₋₄ , ₂₋₄
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 , -200 , -800 .
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 34 , 20 26-
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 (9,7±0,3 9,0±0,3; 11,8-24,6 pmol/l) -
 (5,8±0,1 6,1±0,1; 5,4-9,3
 pmol/l),
 FT₃/FT₄ 0,60±0,02 0,68±0,02 (0,5), -
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130

5 / 2

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(4,0±0,4 7,8±0,6 / ; P<0,0001)

2005].

II ,

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: GIP GLP-1,

GLP-1 GIP [Fushiki, T., 1992].

- #946

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[. . ., 2007].

(/ 45 /) (120 /

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((35 /), II () ()), (Novo

Nordisk,) / 2 / (28)).

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42 (12 30)

40-70 , II 5 ,

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- #946 21 - 1-

(- #946) 90 .

- #946

#946

1. . . . / . . . -
 . . . « . . . », 2005.
 -512 .
2. Fushiki, T. An extract of *Gymnema sylvestre* leaves and purified gymnemic acid inhibits glucose stimulated gastric inhibitory peptide secretion in rats / T. Fushiki, A. Kojima, T. Imoto, E. Sugimoto // *J. Nutr.* -1992. –Vol.122, 12. –P.2367-2373.
3. . . . / . . .
 // . . . 1(21) .-2007. - .79-82.

ANTIDIABETIC PROPERTIES OF DIA- #946: EXPERIMENTAL AND CLINICAL INVESTIGATION

Spasov . . .¹, Kosolapov V. . .¹, Samokhina M.P.¹, Pisarev V.B.¹, Snigur G.L.¹, Bulanov . . .², Balabolkin M.I.³

¹ *Volgograd State Medical University, 400131, Pavshikh Bortsov Sq., 1, Volgograd, Russia, farm@vlpost.ru;* ² *Russian Scientific Research Institute of Health, 123056, Bolshaya Grusinskaya Str., bld.60, block 1, Moscow, Russia;* ³ *Sechenov's Moscow Medical Academy, 117015, Salyam Adilya Str, bld.2, Moscow, Russia.*

The aim of the study was an experimental and clinical investigation of pharmacological properties of composition DIA- #946 based on *Gymnema Sylvestre* with the addition of several bioflavonoides.

The composition revealed prominent hypoglycemic, antioxidative, immune modulating and antiapoptotic properties [Spasov . . . et al., 2007]. In current study the efficacy of DIA- #946 was estimated in several experimental pathologies, demonstrating different pathogenic parts of diabetes: IDDM, immune-dependent DM, DM in pancreatectomic dogs, NIDDM and insulin resistance syndrome.

90- day clinical investigation (single-centered double blind randomized placebo-controlled) carried out at the Sechenov's Moscow Medical Academy showed that DIA- #946 made possible the effective and safe decrease of blood glucose level in patients with NIDDM. It reduced high-calorie food cravings and normalized weight. DIA- #946 normalized the parameters of carbohydrate and lipid metabolism, increased antioxidant system activity, improved blood rheological parameters.

Thus, the plant origin hypoglycemic drug DIA- #946 based on *Gymnema Sylvestre* can be used for a long time for prophylaxis and therapy of diabetes and its complications.

M. ., T. .

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«SurfaceXplore
1.3.11» (,).
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() . 62%
- 72%.

ATOMIC FORCE MICROSCOPY STUDY OF ERYTHROCYTE MEMBRANE IN TYPE 2 DIABETIC PATIENTS

M. N. Starodubtseva, T. G. Kuznetsova

Gomel State Medical University, Gomel

Morphology, cytoskeleton structure and mechanical properties of single erythrocytes of type 2 diabetes mellitus and nondiabetic control subjects treated with peroxyntirite were studied by atomic force microscopy. Significant heterogeneity in diabetic erythrocyte populations, which is most probably determined by the presence of erythrocytes in different age groups and erythropoiesis stages, was revealed.

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13, ostas83@mail.ru;
220064
10, kurchenko@tut.by
220050

1956
-1,4-
2,3- (3- -4-
13,6 32,1 / .
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[1].
Barlean's (), NATURES'S
LIFE (), Natrol (), Nature's Way ()

Barlean's Lignan Flax Oil, Golden
Flaxseed Lignans, Lignan Rich Flax Oil, Flax Oil Super Lignan.

(*Linum ussitasium* L.) : Atalante, Blue Chip, Omega,
McGregor, Somme, Raluca, Cyan, K-2398, Gold Flax.

- 1) ;
- 2) ;
- 3) -
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- 4) ;
- 5) ;
- 6) -
- (1:1) ();
- 7) ;
- 8) TOYOREARL HW-40 F (
- 50% -2);
- 9) -

HW-40 F

TOYOREARL

[2].

TOYOREARL HW-40 F 50%

-2

2%,

- 71%.

-2

-2 (1:1)

1. // . . ., 2002, XLVI, 2, . 14-16.
2. Feng WS, Cao XW, Kuang HX, Zheng XK. A new stilbene glycoside from *Dryopteris sublaeta* // Yao Xue Xue Bao., 2005, 40, 12, . 1131-4.

**ISOLATION AND SEPARATION OF SECOISOLARICRESINOL
DIGLUCOSIDE WITH COLOMN CHROMATOGRAPHY**

Stasevich .V.¹, Mikhalyonok S.G.¹, Kurchenko V.P.², Leontiev V.N.¹
¹*Belarusian State Technological University, ostas83@mail.ru,* ²*Belarusian State University, kurchenko@tut.by*

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[3]. 380

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400 ,

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380 .

(380),

400)

(400).

750 .

IN VITRO

[Redacted]

« *230030* , *-50* »

in vitro.

tris- B.B. (7,4) 4 / . 100
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 0,25, 0,5, 1,0 2,0 / .
 30, 60 120 30° .
 NADPH NADH- , - 450, -S-
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 , 1,0 / . -
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 2 / . -
 NADPH NADH- -
 2 / . -
 (450- , , I) -
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EFFECT OF DI- AND TRIHYDROXYCHOLANIC UNCONJUGATED BILE ACIDS IN VITRO ON ACTIVITIES OF ENZYMES OF XENOBIOTIC METABOLISM IN RAT LIVER.

Sutsko I.P., Legonkova L.F.

Institute of Pharmacology and Biochemistry of the National Academy of Sciences of Belarus, Grodno

Effect of bile (cholic, urso-, cheno-, and deoxycholic) acids in vitro on the content and activity of liver drug-metabolizing enzymes was studied. It was shown that chenodeoxycholic acid selectively decreased the catalytic activities of UDP-glucuronosyl- and glutathione-S-transferases. Among the investigated dihydroxycholanolic acids, ursodeoxycholic had the least toxic effect on biotransformation and conjugation of xenobiotics in rat liver microsomal fraction .

„ „ *230017* , *-50* „,

450 NADH- NADPH- -

450 - - -

„ „ - - -

(5-) - - -

250 . 38 - Wistar 200 -

(n=12). (n=13) 0,85%- NaCL, (n=13) -
 (, 17,5 /) 7 . -

6 (7
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 . 24 -
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 « - » «PLIVA-Lachema Diagnostika s.r.o.» -
 NADPH NADH, NADPH- NADH-
 , NADPH- NADH- .
 , 7 -
 - 2 , - 3 , 50 %, -
 . 48 % 39 % -
 ; , , -
 , , 13% 16% -
 .
 NADPH -
 - 27%; 33% ,
 NADH
 NADPH- NADH- , NADPH- NADH-
 30%, 20%, 37% 21 %, -
 . , , -
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EFFECT OF LEUCOVORIN ON THE ACTIVITY OF ENZYMES OF THE ELECTRONTRANSPORT CHAINS OF THE HEPATOCYTE ENDOPLASMIC NETWORK AND SOME INDICES OF RAT LIVER FUNCTIONAL STATE IN EXPERIMENTAL CHOLESTASIS.

Sutsko I.P., Makar E.A.

Institute of pharmacology and biochemistry, Grodno

Effect of leucovorin on the activity of enzymes of the electrontransport chains of the hepatocytes endoplasmic network and some indices of rat liver

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**THE STUDY OF CHRONIC TOXIC EFFECTS OF THE HEMO-
STATIC DRUG “ALUFER”**

Tamilovich G.V., Melnova N.I., Gapanovich V.N., Nadirov N.A.
*Republican Scientific and Practical centre of Hematology and Transfusiology,
 Scientific and Technical centre RUP “MBI” concern “Belbiofarm”*

 “ ” “ ”

 1 2 2 2

 “ ” “ ”

 1, 223059 . , , 160, -

 “ ” “ ”

« » (0,039 – 0,078%),
 0,032%,). (0,781 – 6,25% 0,004 –
 48,0% 3 -
 « » 1,562%, 3,125%
 6,25% 24,0, 5,0 0,5 -
 . -
 48,0% 24,0% 24 3 , -
 . -
 « » 0,781% 24-
 ; 1,562% 3-5 6,25% 30
 . -
 . .
 24% .
 . .
 . « » , -
 1:64 – 1:512 . -
 48% 5
 . -
 “ ” -
 , -
 , -
 - .

**THE STUDY OF ANTIBACTERIAL EFFECT OF THE HEMO-
STATIC DRUG “ALUFER”**

Tamilovich G.V., Melnova N.I., Gapanovich V.N.

*Republican Scientific and Practical Centre of Hematology and Transfusiology,
Scientific and -Technical centre RUP “MBI” concern “Belbiofarm”*

BOOH- I₄, t-

H₂O₂ -

122,9%, 140,8%, -

(t-BOOH) - 140,3%.

110,1%, 112,7%

Se. -

(CCl₄) -

16,7% ; 83,3%

1. // , 2002. - .70-97.

2. Chu F., Esworthy R.S., Doroshov J.H. Role of Se-dependent glutathione peroxidases in gastrointestinal inflammation and cancer // Free Rad. Biol. Med. – 2004. – Vol.36, N12. – P.1481-1495.

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SELENIUM DERIVATIVES IN PREVENTION OF TOXIC LIVER INJURY

Tarasov Y.A.¹, Pekhovskaya T.A.¹, Prokopchik N.I.², Omelyanchik S.N.¹,
Yelchaninova M.A.¹, Makar E.A.¹, Moiseenok A.G.¹

¹ *Institute of Pharmacology and Biochemistry, National Academy of Sciences, Grodno department, Belarus;* ² *Grodno State Medical University, Belarus, Grodno, 230030, BLK-50; e-mail: val@biochem.unibel.by*

Comparative study of preventive impact of selenium organic derivatives (selenomethionine, dimethyldipyrazolylselenide – selekor and 2-phenyl-octahydro-selenoxanthene – selenopyrane) on morphological and biochemical markers of hepatic lesion induced by carbon tetrachloride in rats showed peculiar properties of these Se substances in improvement of hepatic oxidative stress and fermentemia.

1(9)- [1,2-A] -2-(4-)-

_____ 1, 2, 1, 2, 1, 2,

1 - , 344090, - - ,

, 194/2, -mail: anis@ipoc.rsu.ru,²

, 350000, , , 4, e-mail:

kybfarma@rambler.ru

[1,2-a] -2- [, 1,2], -

(, -

).

, , .

, -
 , [1-3]. -
 4- 1-
 -2- 9-
 -2-(4-) [1,2-a] .
 2- 4-
) 1-(4-)-2-(3-
) , -
 1- -2-(4-) [1,2-
 a] , 1- -2-
 (4-) ,
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 2005). .- . , . . . , ., « » ,
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 - , -
 [1,2-a] , -
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 2-3 .
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 [1,2-a] , -
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 , ,
 , -
 .

35,8% (p<0,05). 19% (p<0,05), 45,8%
 (<0,05) 42,7% (<0,05), 120-
 (07 -232).

THE PRINGLE MANEUVER INFLUENCE ON PROOXIDANT-ANTIOXIDANT BALANCE PARAMETERS IN RATS

Khodosovsky M.N.¹, Hlutkin S.V.¹, Sutko I.P.², Lelevich A.V.¹,
 Guschin A.M.¹

¹ - *Grodno State Medical University, Grodno, Belarus;* ² - *Institute of Pharmacology and Biochemistry NAS of Belarus, Grodno, Belarus*

This investigation showed that Pringle maneuver and reperfusion lead to intensification of lipid peroxidation and decrease of antioxidant parameters, suggesting severe oxidative stress in rat liver.

g q*44

1 „
 2 , e-mail: office@biochem.unibel.by;
 3 ;

g q*44.

G_q

[Mende U.,1998].

$g_{q^{*44}}$

14-

II
[Griending 1994, Ishida 1990].

$g_{q^{*44}}$

(2, 4, 12, 14 16 FVB).

(),
()

(),

g_{q^*} 4- -
68%, 12- - 53%
FVB 87 83%

16-
50%.

$g_{q^{*44}}$ 12-
1,5

14 16

FVB

FVB.

$g_{q^{*44}}$

21-25%

II

[Bendall et al, 2002].

1. Mende U., Kagen A., Cohen A., Aramburu J., Schoen F.J. and Neer E. Transient cardiac expression of constitutively active Galphaq leads to hypertrophy and dilated cardiomyopathy by calcineurin- dependent and independent pathways // Proceedings of the National Academy of Sciences of the United States of America. – 1998. – Vol. 95. – P.13893.

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3. Ishida K., Takeshige K., Minakami S. Endothelin-1 enhances superoxide generation of human neutrophils stimulated by the chemotactic peptide N-formyl-methionyl-leucyl-phenylalanine // Biochem Biophys Res Commun. – 1990. – Vol. 173(2). – P. 496-500.

ANTIOXIDANT STATUS IN TRANSGENIC Tgaq* 44 MICE WITH CHRONIC CARDIAC INSUFFICIENCY

Khomich T.I.¹, Kozlovsky V.I.², Chlopicki S.³

¹*Institute of Pharmacology and Biochemistry, NAS of Belarus, Grodno, Belarus, e-mail: office@biochem.unibel.by;* ²*Grodno State Medical University;*

³*Department of Experimental Pharmacology, Medical Department of the Jagellonian University, Krakow, Poland*

The status of the cardiac system of antioxidant protection was studied in transgenic Tgaq* mice of varying ages (2, 4, 12, 14 and 16 months). The animals were distinguished by high expression of cardiac Gaq protein which contributes to development of chronic cardiac insufficiency. During ageing the mouse heart showed considerably decreased superoxide dismutase activity. By the age of 16 months it amounted to less than 50% compared to 2-month animals, and catalase activity was elevated over 1.5-fold. In control FVB mice, these changes were insignificant. During the age periods studied, the activities of glutathione reductase and glutathione peroxidase were by 21-25% higher as compared to FVB mice. The findings confirm an important role of superoxide anion in development of oxidative stress and disturbances in the antioxidant system in the pathogenesis of chronic cardiac insufficiency.

pyriformis

Tetrahymena

(Polygonum sachalinense Fr. Schmidt);

Tetrahymena pyriformis,

[8].

$5 \cdot 10^{-3}$ / ,
 4 / ,

100 .
 $2,5 \cdot 10^{-3}$ / $2,5 \cdot 10^{-}$
 50 5 .

«

» [9].

24, 48, 72, 96

Tetrahymena pyriformis

(), : $n = \ln \frac{N_t}{2000} : \ln 2$,

$2000 - N_t -$

t.

n -

$$N_{o-24} + N_{o-48} + N_{o-72} + N_{o-96} \\ N_{k-24} + N_{k-48} + N_{k-72} + N_{k-96}$$

$N_o -$

, $N_k -$

$$= \frac{\times n}{-1 + \dots + -n}, \quad n -$$

(%)

Tetrahymena pyriformis

43%
 , 1, (. 1).
 2,5 10⁻⁴ /
 5 10⁻³ / , 47%- 25% - (66%-
). 2,5 10⁻³ / ,
 - (36%),
 2 % (2).

2 -

Tetrahymena pyriformis

	24	48	72	96
	36176 ± 2744	336000 ± 2309	528000 ± 19053	724000 ± 2646
Pb(NO ₃) ₂ 7 10 ⁻² /	23500 ± 577*	230000 ± 5774*	415000 ± 6083*	570000 ± 8660*
Pb(NO ₃) ₂ 7 10 ⁻² / + . 5 10 ⁻³ /	35667 ± 3180	388667 ± 10088*	699000 ± 17321*	761000 ± 13115*
Pb(NO ₃) ₂ 7 10 ⁻² / + - 2,5 10 ⁻⁴ /	34000 ± 2566	426000 ± 2309*	558000 ± 20785	782000 ± 5292*
Pb(NO ₃) ₂ 7 10 ⁻² / + - 2,5 10 ⁻³ /	32333 ± 441	340000 ± 2309	540000 ± 6928	667000 ± 11790*
Pb(NO ₃) ₂ 7 10 ⁻² / + - 2,5 10 ⁻⁴ / + . . 5 10 ⁻³ /	32000 ± 2082	451333 ± 4667*	666000 ± 18330*	753000 ± 7937*
Pb(NO ₃) ₂ 7 10 ⁻² / + - 2,5 10 ⁻³ / + . . 5 10 ⁻³ /	36667 ± 2028	295333 ± 6766*	546000 ± 13077	590000 ± 10149*
, %				
Pb(NO ₃) ₂ 7 10 ⁻² /	35	32	21	21
Pb(NO ₃) ₂ 7 10 ⁻² / + . 5 10 ⁻³ /	1	16	32	5
Pb(NO ₃) ₂ 7 10 ⁻² / + - 2,5 10 ⁻⁴ /	6	27	6	8
Pb(NO ₃) ₂ 7 10 ⁻² / + - 2,5 10 ⁻³ /	11	1	2	8

Pb(NO ₃) ₂ 7 10 ⁻² / + -	12	34	26	4
2,5 10 ⁻⁴ / + .				
.5 10 ⁻³ /				
Pb(NO ₃) ₂ 7 10 ⁻² / + -	1		3	
2,5 10 ⁻³ / + .		12		19
.5 10 ⁻³ /				
, %				
Pb(NO ₃) ₂ + . .	34	48	53	26
Pb(NO ₃) ₂ + 2,5 10 ⁻⁴	29	59	27	29
/				
Pb(NO ₃) ₂ + 2,5 10 ⁻³	24	33	23	13
/				
Pb(NO ₃) ₂ + 2,5 10 ⁻⁴	23	66	47	25
/ + . .				
Pb(NO ₃) ₂ + 2,5 10 ⁻³	36	20	24	2
/ + . .				

1) (Laserpitium latifolium L.):

2)

3)

(66% 25%)

4) 2,5 10⁻³

1. Flavonoids in Health and Diseases / C.A.Rice-Evans [et al.] – Marcel Dekker, New York, 1997. – 320 .

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5. , . . . // - « » . – 1/2005. – 10-13.

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8. , . . . // -
/ . . . , 1968 .- .7-26. -

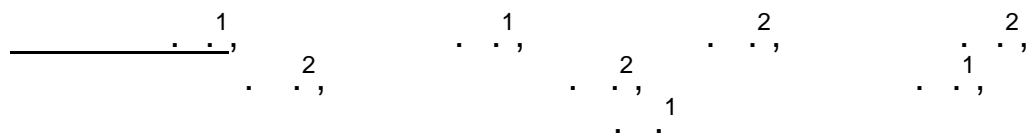
9. .- , 2000.- 35 . -

IN VITRO

_____ 1, 1,2, 1, 2,
1, 1, 1, 2,
1 1
2 1
; *cherenkevich@bsu.by*

in vitro,

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 -
 -
 (35,9%),
 450
 (39,4%) b₅ . -
 , ,
 - ,
 . ,
 (25,3%) .
 -
 -
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 -
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 .



... , *chirkin@vsu.by; chir@tut.by;* ;

-
 : (52,3%), (11,38%),
 (8,41%), (7,59%), (7,13%), (3,99%),
 (1,92%), (1,72%), (1,19%).
 , (, , ,)
 , 1% .
 , 57%
 , 23%
 , 6%
 14% [1]. ,

[2].

(8,61%), (7,49%), (16,76%), (14,2%),
 (4,29%), (8,39%), (5,81%), (4,44%),
 (0,81%), (2,42%), (2,02%), (1,20%),

« » (
 – *Salsola collina* Pall)
 (*Antheraea Pernyl* G.-M.).

80 /
 10-11 / , 12-14 / , 9-12 / ,
 + 11-14 / , + 13-14 / , 6-7
 / , 2,6-3,2 / , 11-14 / [3].

[3].

1. Elwyn D. // *Mammalian Protein Metabolism* / Ed. H.N. Munro. – New York and London: Academ. Press, 1970. – Vol. 4. – 523 p.

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3. „ . - :
 , 1990, 354 .

12, *salvia-nobite@mail.ru*

[1].

QT. / -

> 6,0

3,5 /

[2].

2 :

() 2001 – 2006 . 500 \VEN

2005

(1%, 4%, \VEN)

() 2001 6 %

, 2006 1%.

\ “ ”. 2001-2002 . “ ”, 5,8% 2,3%

1%

1. , , 1988
2. 2006 .

N-

2

220141, , 5/2; E-mail: sharko@iboch.bas-net.by

2 (3.1.1.4)

sn-2

[1].

(AA-Gly), - (AA-GABA)
 (AA-Ala) [2],
 , AA-Gly AA-GABA

N-

N-

1. Yedgar S., Lichtenberg D., Schnitzer E. Inhibition of phospholipase A₂ as a therapeutic target. // *Biochim. Biophys. Acta.* – 2000. – Vol. 1488. – P. 182.
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MODULATION OF PHOSPHOLIPASE A₂ ACTIVITY BY N-ARACHIDONOYLAMIDES

Sharko V.L., Kisel M.A.

*Institute of Bioorganic Chemistry, National Academy of Sciences, Minsk,
Belarus*

, *shatnjuk@post.ru*

[1, 2].

2

(, **740**), **40**

[3].

(.) **40-80**

2-3

(1999-2005

[4].

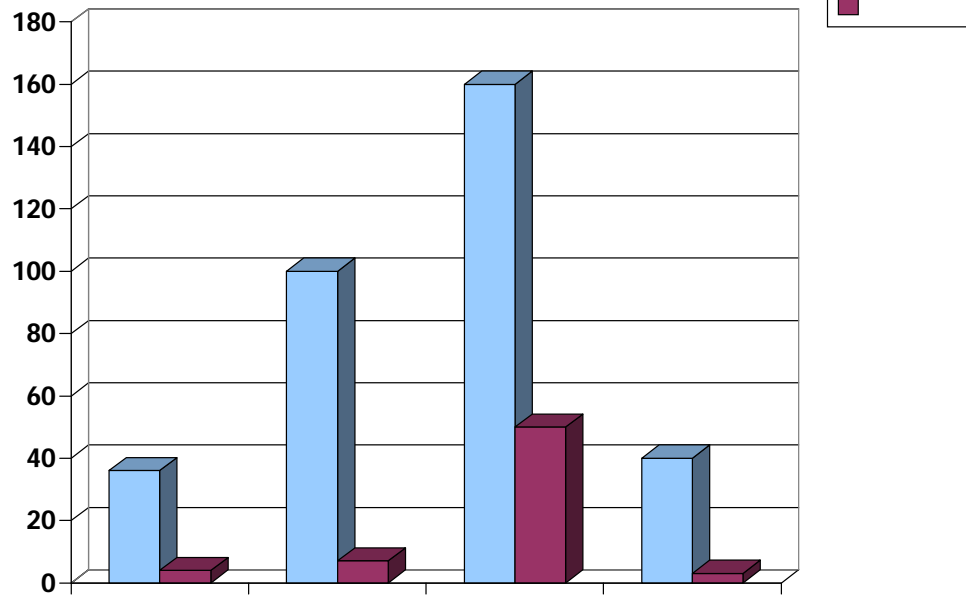
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 [2, 5, 6, 7].
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 [11,
 12],
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 800–1000 /100 .
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 (800 /100), (70 /100),
 (770 /100),
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 4-15 /100 .
 ,
 150–200 , , ,
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 ,
 , 2 1 , 3-4
 .

– 14 65 %.

.1

(110 100)
10 (!)

* , %



*)

. 1.

30, - 50 , . . . -
 180 - 200 [18]. -
 . , , -
 . , -
 . 1 4 - 5 , -
 [19]. , , -
 (3 - 7) - 80 - 100 40 , -
 - 100 - 130 . -
 « » 2.3.1.1915-04, -
 2004 . , -
 300 [20]. : -
 - 1100 [21]. -
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⇒
 ⇒ - , () -
 ⇒ , , -
 ⇒ , - - , , -
 ⇒ , **5 - 10%**

. 2.

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 , KJ
 , -
 (MgCO₃,
)
 3).
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 , 3- .,
 ,
 (23±15 / 1)
 [6].
 , ,
 KJO₃.
 KJO₃ , KJ,
 [22].
 , 4-6 .,
 - 12 .
 51575-2000,
 40±15 1 .
 .
 150-200 . 5 - 6
 (25-55 /).
 (1)
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 50
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38-60 , -

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[6].

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1,2 (100) 200-250 1,0-

2-3 , 50% , -

2-6 % - 3,0 8,0 /100 , -

- 150-200 -

8,4 , -

3 [12]. -

80-120 (40 1) -

() [25, 26, 27, 28]. -

50- -

(), , -

[29, 30, 31, 32, 33]. (

), , , -

, -

, -

89)

45±15

1
1,5-2,0% ()

KJ KJO₃.

44-55 100 , 30-36% (-).

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, , -
, - (),
(-
). , [8, 36, 37].

,
[9, 38, 39].

,
1000 , [8, 40].

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, , [25].

: ; (, -
); ;
, ;
; .
- (, KJO₃
40±15 1 ;
KJO₃, ; (KJ)
; , -
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, -
, -
[25, 27, 28].

, -
, , -
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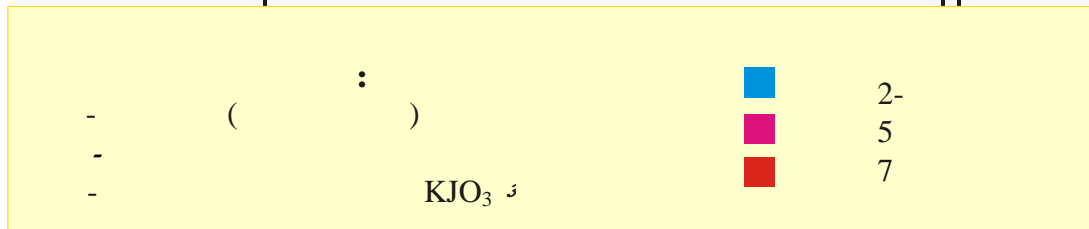
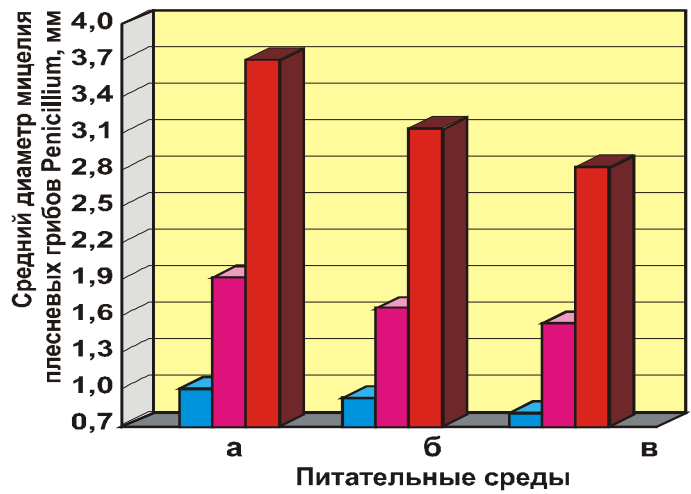
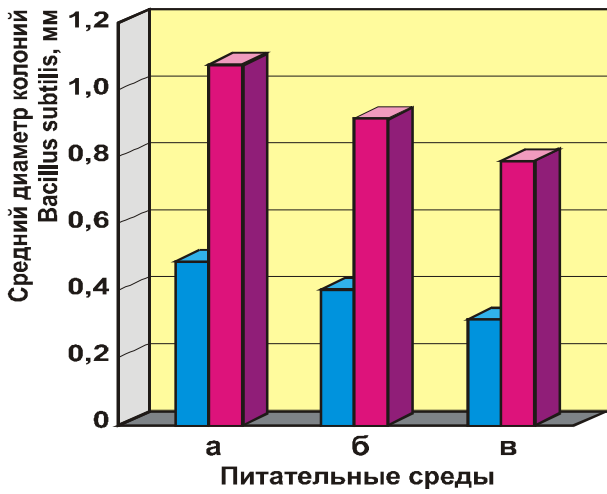
Penicillium,
(.3.)

KJO₃,
[25].

Bacillus Subtilis

KJO₃,
Penicillium [25, 28].
KJO₃
Bacillus Subtilis

- 80-85 %



.3.

KJO₃

«
» 4.1.1187-03.

«
» (, 1998),

2 (- « 45±15 / »,

)

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2.

[32]

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40±15 /		
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		50
-		40
-		50
» «	«	32
- «	(,)	32
- « »	-	50
	()	
- « »		40
- « »		40
- « »	-	27
« »	-	38
« »	« (,) »	43
« »		43
« »		42

10 // -

11 . // . -1998.- 2.- .9-11 . (.

12) . 2- . // :: « ».-1987.-360

13) .- :: (. -

14 // . // , 1974.- .356-363

15 // .-1959.- 6.- .643 -

16 // . .-1992.- 6.- .30-31 -

17 // : .-2004.-185 . 2

18 // . .-1995.- 3.- .12-15 -

19 29.05.1991 5786-91. // : .- 1991. -

20 2.-2004.-35 . -

21 2.3.1.1915-04. // :-2004.-36

22 Dietary Reference Intakes for vitamin A, vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zink. // Institute of Medicine. // National Academy Press, Washington D.C.-2002.-P. 773

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24 // 2112403 10.06.1998 . -

25 , . // 3- « , , ».-1999.- .51-52. -

26 . . // .-2001.-152 -

27 // .-2003.- 1. - .11-13; 2.- .34-35

28 // .-2001.- 3.- .32-33 -

29 // . 2001. 4. .24 -

« ».- , 1993. .140-142 -

- 30 - / -
 65- « -
 21 ».
- 31 . - . : , 1997.
 190 .
- 32 (). // : -
 .-2004.-252
- 33 . -
 .: , 1989. 494 .
- 34 Clydesdale F.M. The relevance of mineralchemistry to bioavailability. // Nutrition Today 1989.-4 (2)-23-30.-P. 17.
- 35 «
 ».
 2.3.2.560-96.
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- 38 // -
 . // : . « ».-2002.-
 168 .
- 39 2005 , ,) // : -
 (.-2001.-35 .
- 40 New US Dietary Reference Intakes. //Nutriview. 2001. 2.

**SCIENTIFIC APPROACH AND PRACTICAL ASPECTS OF
 IODINE SHORTAGE LIQUIDATION IN CHILDREN'S AND ADULT
 NUTRITION IN THE RUSSIAN FEDERATION**

Shatnjuk L.N.

Institute of Nutrition, Moscow, Russia, shatnjuk@post.ru

The iodine microelement's role and the reasons of its shortage appearance in the children and adult nutrition in Russia are viewed in the article. Basing on the native and foreign experience analysis the scientific and practical aspects of iodine shortage liquidation by means of the enrichment of the foods of mass consumption – bread and sodium chloride (table salt) are discussed.

The hygienic and technological preferences of using the iodinated salt in breadmaking in comparison with other iodine-containing supplements are shown. A great range of bread-products, containing iodinated salt, including the salt with deferred natrium content, for various groups of people is elaborated.

« »

01601,

4, -mail: angela@biph.kiev.ua

(),

$\omega-3$

[1, 2].

$\omega-3$

[1].

-3

$\omega-3$

NO-

280-300 .

(, 1985).

4 : 1)

» (0,1 /100 , 4 ; 2)

43% $\omega-3$; 3)

(6

); 4)

$10^{-7} - 10^{-6}$ / .

()

NO-

« » () - 19%)

$\omega-6$ (-

(32%).

$\omega-3$

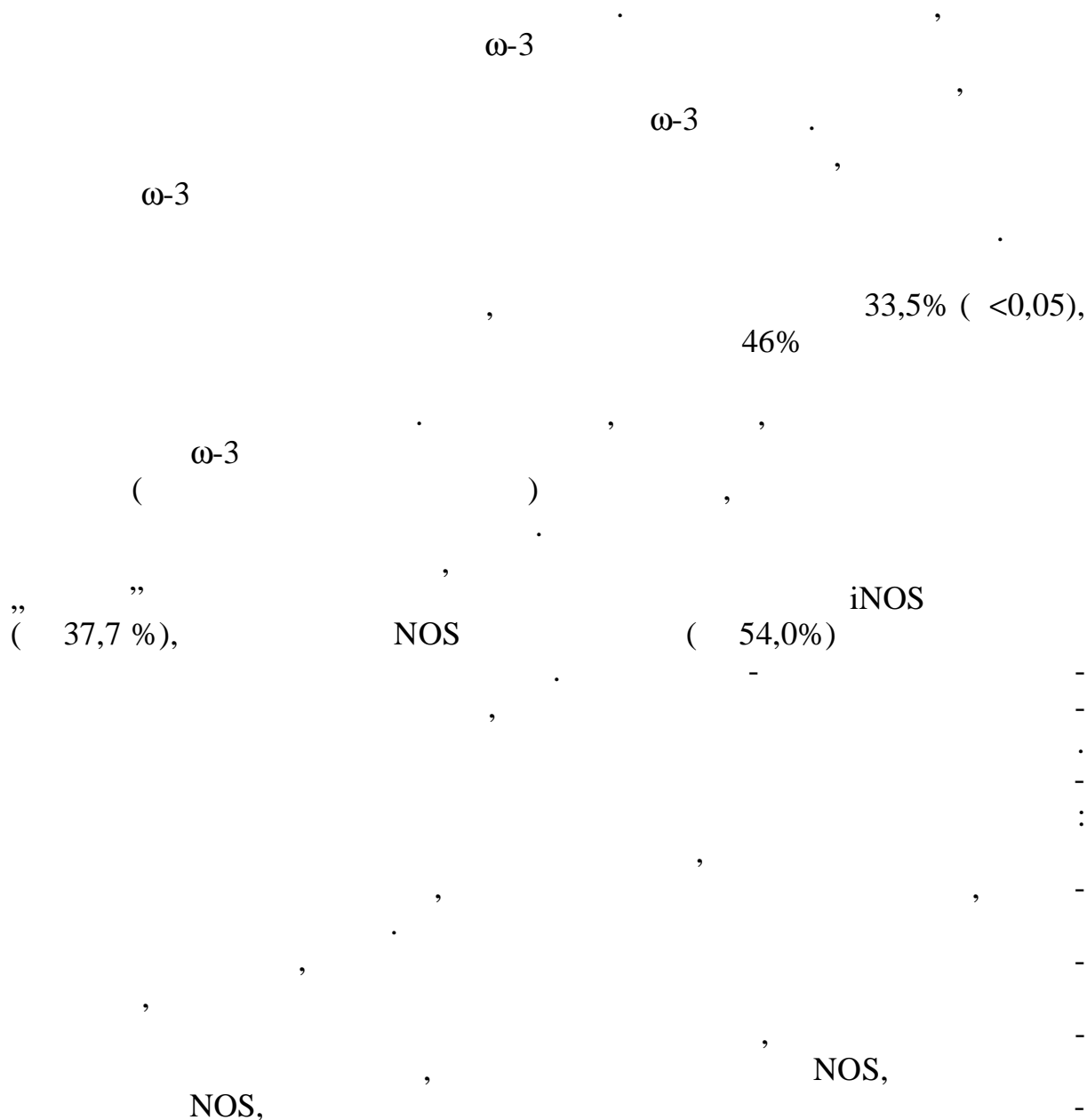
(<0,05)

22,6%

0,1

1

36% (<0,05) 18,4% (<0,05),



1. Breslow Jan L. n-3 Fatty acids and cardiovascular disease. // American Journal of Clinical Nutrition – 2006. - Vol. 83, No 6. – . S1477-1482S.
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AMELIORATIVE EFFECT OF "EPADOL" DURING STRESS INJURY OF HEART

Shysh .M., Kukoba T.V., Tumanovskaia L.V., Mo benko O.O.
Bogomoletz Institute of Physiology, National Academy of Sciences, Kyiv, Ukraine

. .	155	. .	6
. .	169	. .	15
. .	4	. .	15
. .	80, 169	. .	59
. .	19	. .	112
. .	3	. .	74
. .	4	. .	165
. .	38	. .	38
. .	11	. .	99
. .	149	. .	6
. .	6	. .	38
. .	129	. .	171
. .	6	. .	34
. .	3	. .	34
. .	8, 11, 13, 114	. .	117, 131
. .	27, 68	. .	180
. .	36	. .	183
. .	68	. .	36
. .	15	. .	4
. .	175	. .	23, 99, 94, 120,
. .	17	. .	38
. .	129	. .	183
. .	180	. .	182
. .	149	. .	125
. .	112	. .	50
. .	19	. .	38, 118
. .	21	. .	92
. .	135	. .	80
. .	169	. .	167
. .	92	. .	40
. .	23	. .	49
. .	71	. .	50
. .	25	. .	81
. .	27	. .	8
. .	114	. .	133
. .	28	. .	175
. .	53	. .	117, 131
. .	129	. .	101
- . .	169	. .	182
. .	30	. .	52
. .	163, 165	. .	183
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