

*ОСНОВНІ ПІЯТІМ ТРУЖИПІВ
у системі ФАО/WRB*

1

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2006

40.34 73
538
631.44(075.8)

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538 /WRB: -
- 152 . . - 1 - : , 2006.

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40.34 73
631.44(075.8)

ISBN

© . ., 2006
© “ ”, 2006

(IUSS Working Group Reference Base)

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Soil Reference and Information Centre – ISRIC)

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Food and Agriculture Organization of the United Nations – FAO)

(Lecture Notes on the

Major Soils of the World, 2001).

ISRIC,

(Catholic University of Leuven)

(Wageningen Agricultural University),

(International Institute for Aerospace Survey and Earth

Sciences – ITC);

1991

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2. ” ”

1 10

1 (HISTOSOLS).

2

(ANTHROSOLS).

3

T (ANDOSOLS) –
T (ARENOSOLS) –

T (VERTISOLS)

4 –

1. (FLUVISOLS),

2. (GLEYSOLS)

6

1. (LEPTOSOLS) -

2. (REGOSOLS) -

5' -

(CAMBISOLS). -

6 -

1. (PLINTHOSOLS) -

2. (FERRALSOLS), -

3. (ALISOLS) -

4. (NITISOLS), -

5. (ACRISOLS) -

6. (LIXISOLS) -

7 -

T (SOLONCHAKS)

;

T (SOLONETZ) ; 7
T (GYPSISOLS) ,
T ; (DURISOLS) -
T , (CALCISOLS) ; -
. 8 , , -
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. . 8
T (CHERNOZEMS) : , -
-
T ; (KASTANOZEMS) , -
/ (-
T); (PHAEOZEMS), - -
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T : (PODZOLS) -
, -
T / ; (PLANOSOLS) -
T , (ALBELUVISOLS) -
, -
T ; (LUVISOLS)

T (UMBRISOLS) ; -

10

(CRYOSOLS).

6 10

6-10

9), () ; (

WRB

1		HISTOSOLS	
2	(-) -	ANTHROSOLS	
3			

	,	ANDOSOLS	
	,	ARENOSOLS	
	, , -	VERTISOLS	
4	,	FLUVISOLS	
	(-	GLEYSOLS	
)	LEPTOSOLS REGOSOLS	
5	,	CAMBISOLS	
	(-)		
6	,	PLINTHOSOLS FERRALSOLS NITISOLS ACRISOLS ALISOLS LIXISOLS	
	()		
	,	SOLONCHAKS SOLONETZ GYPSISOLS DURISOLS CALCISOLS	
8	,	KASTANOZEMS CHERNOZEMS PHAEZEMS	-
	,		
	()	PODZOLS PLANOSOLS ALBELUVISOLS LUVISOLS UMBRISOLS	-
10	,	CRYOSOLS	

1.3.

WRB

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WRB

2-4; 2) (-

R) (H, O, A, E, B, C -

B- WRB -
 (ferralic) B- (mollic) -
 B, -
 (calci) (gypsic).

(anthropogenic)	
(chernic)	
(foli)	
(fulvic)	
(histic)	
(melanic)	

	1', 1.70'	
(mollic)	,	-
(takyric)	;	- -
(umbric)	,	-
(ochrik)	,	
(vitric)	,	- ,
(yermic)	”),,	(,, - -
(albic)	,	- -
(andic)	,	- -
(argic)	,	- / /
(cambic)	,	:
(cryic)		

¹ melanic () – , -
 NaOH- , 450 520 . (Honna T., S. Yamamoto K. Matsui. 1988. A simple procedure to determine the melanic index that is useful for differentiating Melanic from Fulvic Andisols. Pedologist, Vol.32 No 1, 69-75.)

(calcic)		
(duric)	(Si ₂)	-
(ferralic)		
(ferric)		(),
(fragic)		-
(gypsic)		
(natric)		-
(nitic)		-
(petrocalcic)		
(petroduric)	(Si ₂)	
(petrogypsic)	(CaSO ₄ ·2H ₂ O)	-
(petroplinthic)		-
(plinthic)		-
(salic)	1 %	-
(spodic)		-
(sulfuric)		-
(vertic)		-

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(tephric)	, ()

, 2-4, WRB. 2 , -

1.4. (WRB)

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 WRB (. morphos - . metrum -)
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 1 WRB; 2 ,
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 WRB 30,
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3 (2).

1.4.1.

1.
WRB
2.

(3).

(Epi-D str Luvisol) – „
„ – „
.

(), Acri-Geric Ferralsol (Abruptic Xanthic).
3.

„Dystri-Petric Calcisol“
(„Dystri“ „Calcisol“),
"Eutri-Petric Calcisol", "Eutri"

„Calcisol“.
4.

1.4.2.

„
„
4
„

:
Vertisols
(4):

_____:				
1. Thionic –			Gleysols, Fluvisols	
Cambisols				
2. Salic –			Solonchaks	
3. Natric –			Solonetz	
4. Gypsic –			Gypsisols	
5. Duric –			Durisols	
6. Calcic –		Calcisols		
7. Alic –		Alisols		
_____:				
8. Gypsic –				
9. Grumic –				-
10. Mazic –				-
11. M s trophic –		< 75 %		
12. Hyposodic –			6	15%
13. Eutric –		50 %		
14. Pellic –		,		
15. Chromic –				
16. Haplic –				
	Vertisols,			
Calci-Chromic Vertisol,				6 15.
		EpiCalci-Chromic Vertisol (-
		50)	
		,	,	-
		.	,	
Vertisol				
10),	Calci-Chromic Vertisol (Mazic).		(
	1.4.3.			
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	"	"	100	,
200			,	-
				-
		bathic.		
				-
	. WRB			-

50
Regosol, Andosol (Arenosol),
thapto-
< 50

thapto,

2. 1. (Histosols)

2.1.

Histosols

Histosols –

1) histic folic 10

2) 40 andic vitric 30 ;
30

: Glacic, Thionic, Cryic, Gelic, Salic, Folic, Fibric, Sapric, Ombric, Rheic, Alcalic, Toxic, Dystric, Eutric, Haplic.

_____ : (. histos –) .

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2.2.



.1.

325-375

20



gleyic

stagnic

()

Podzols.

- Solonchaks ()

- Fluvisols, Gleysols

()

Andosols,

Podzols, Fluvisols, Gleysols, Cambisols Regosols.

2.3.

20 %

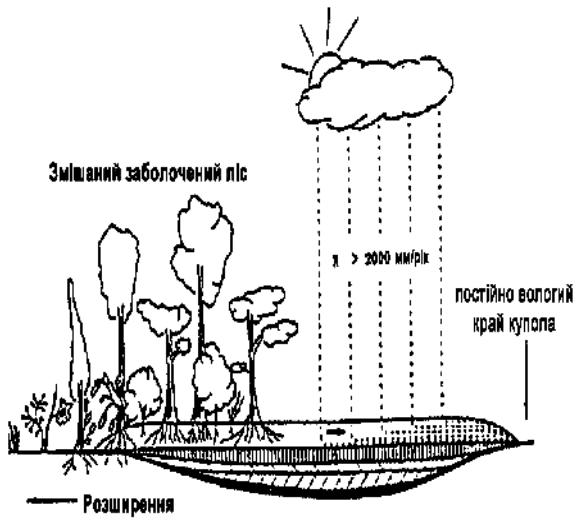
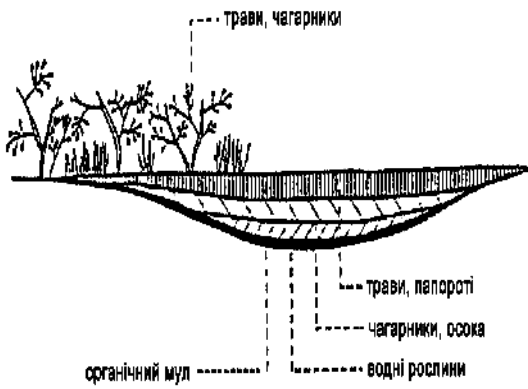
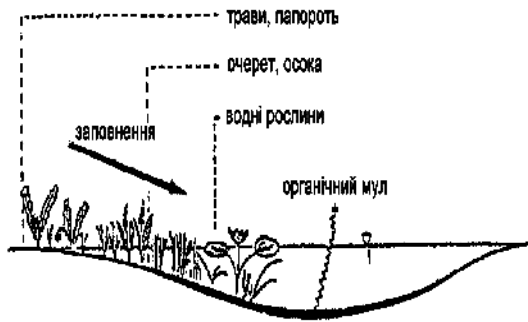
30-35%.

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. 2.

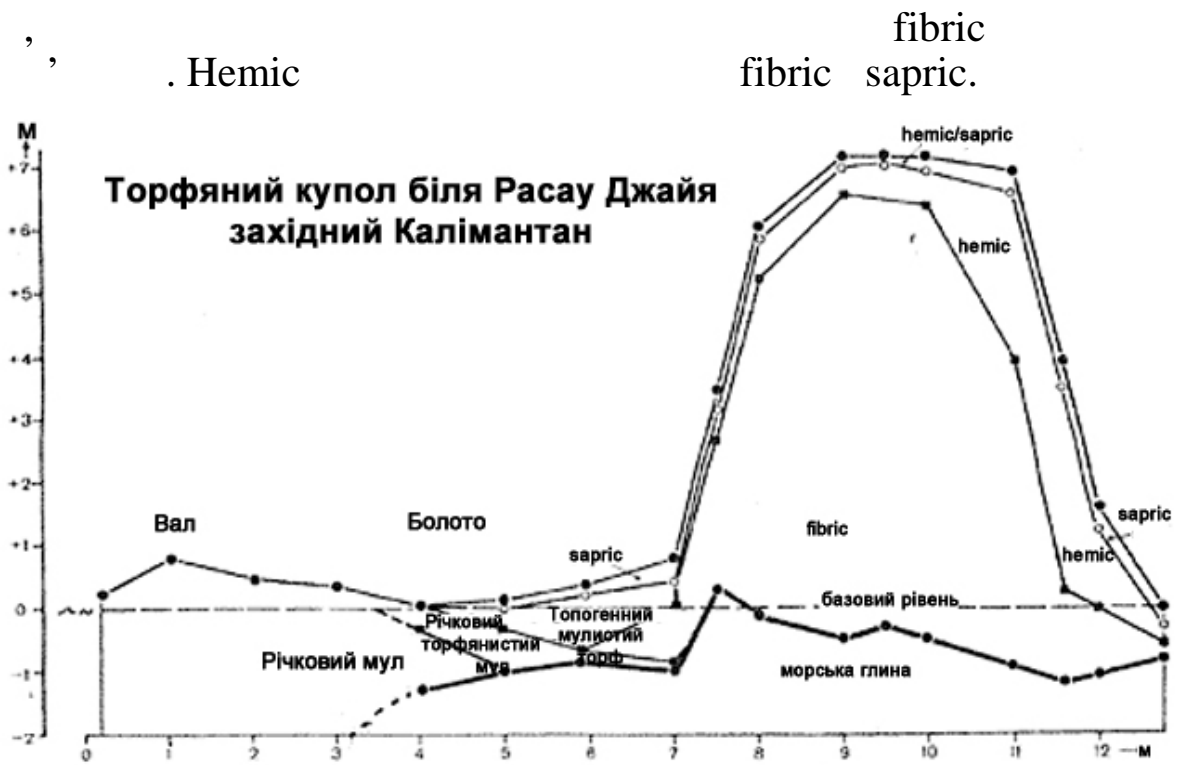
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 (8-12) , . -
 3-5 0,05 / 0,25 0,45 / (Anderson, 1964).
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 30-50 . -
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 (,) , -
 () . -
 . Sapric -
 1/6 , -
 . Fibric -
 2/3 -
 . -

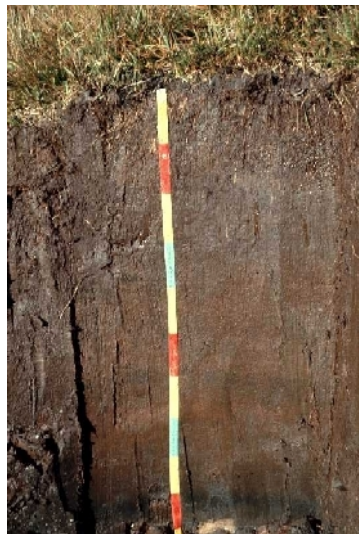


. 3. (hemic)
 sapric, fibric- sapric
 () .

10-30'

fibric

2.4.



.4. - (>85
 %),
 (Ombri-
 Sapric
 Histosol)
 HCr H.

Eutric Histosol

D. Creutzberg

40
 H1 – 0-8 – (10YR 2/1,);
 H2 – 8-13 – (10YR 2/1,);
 H3 – 13-43 – (10YR 2/2,)
 (10YR 4/3,);
 H4 – 42-82 – (10YR, 4/3.),
 H5 – 82-120 – (10YR 2/2,)
 (10YR 4/4);

Fibric
0,05–0,15 / ³).

(0,15–0,25 / ³). (0,4 / ³)

1,4 / ³.

Fibric
5-10 , 0,9 ³/ ³;

Fibric
/ . 1,6 / 30
sapric

; ()

() p

>6,
– 3–5,5. (p ~3)

(p ~7.8)

2/3
1 10 %
5
().

Eutric Histosol

		()	(KCl)	CaCO ₃	C %, %	N %, %
1	0-8	7,2	7,0	0,8	37,8	0,34
4	43-82	5,2	5,0	-	45,5	-

hitam, Zwartewater
6
, Blakkawatra, Air
)

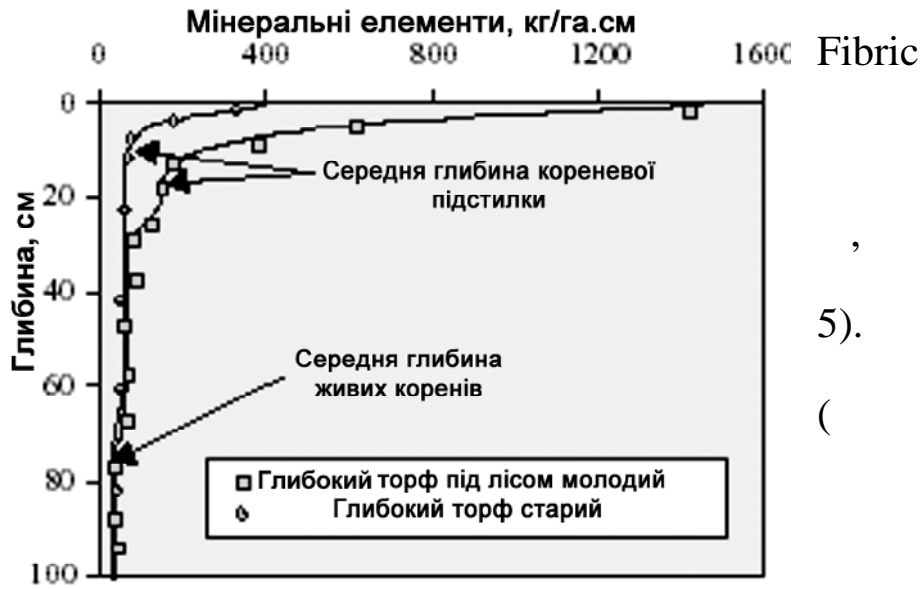
Fibric

(/)

	0-25	80-100
	0.1-0.2	0.05-0.1
	0.8-8.0	0.2-0.8
	143-175	67-220
	4.1-25	1.1-7.1
	0.6-1.0	0.3-0.6
	2.8-4.4	1.8-4.8

25
()
0-20
2000-4000 / a N,
, K₂O, P₂O₅ Si₂
, Ca Mg

Na, Cl SO₄



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Rheic

2.5.

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3.

2.

(Anthrosols,)

3.1.

(Anthrosols)

Plaggen soils, Paddy

soils,

Terra Preta do Indio.

1) horticultural, irrigated, plaggic terric 50

2) anthracic hydragic 50

1) : Hydragic, Irrigated, Terric, Plaggic, Horticultural.

2) (-): Gleyic, Spodic, Ferralic, Luvisc, Arenic, Regic, Stagnic.

anthropos -)

: Plaggic Anthrosols

; Hydragic Anthrosols -

, Irrigated Anthrosols -

(-);

:

. Irrigated

. Hydragic

, Horticultural

3.2.

Plaggic Terric 500000

(. 6).

Irragric

. Hydragric

paddy,

). Hortic

1. Plaggic

Arenosols Podzols

2. Terric

Fluvisols, Gleysols
Histosols

Albeluvisols, Arenosols Podzols.

3. Irragric

Calcisols, Gypsisols, Solonchaks Solonetz, Regosols
Cambisols.

4. Hydragric

Gleysols Fluvisols
Alisols, Acrisols, Lixisols Luvisols
Andosols

5. Hortic

3.3.

1)

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2)

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3)

);



. 6. Plaggic Terric

(Pape, 1970)

4) , ;
 5) , -
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 (, -
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), . -
 .
 , Anthropic
 Regosols.

3.3.1. Plaggic

Plaggic plaggic,
 - , -
 - plaggic . -
 250 P₂O₅ 1 / (,
 1-% plaggic). -
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 ” ”.
 0,1
 , , plaggic 1 . -
 (plaggic) -
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 , 10 -
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 plaggic. , -
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Plaggic (. 6).
plaggic

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3.3.2. Terric

Terric

3.3.3. Irragric

Irragric

– Irragric

3.3.4. Hydragric

Hydragric

(

),

„anthraquic”

anthraquic

3.3.5. *Hortic*

Hortic – „ ”. (), – *Hortic* -
 , (, -
) .

3.4.



.7.

Anthrosol, anthraquic, hortie, hydragric, irrigric,
 terric plaggic -

Plaggic Terric () -

M.Mitsuchi, M.Okazaki , -

dragric Anthrosol.

Apg1 – 0-10 – (5Y 4/1,), , -

Apg2 – 10-19 – (5Y 4,5/1,), , -

Bg1 – 19-25 – (5Y 4,5/1,), -

Bg2 – 25-36 – (5Y 4/1,), -

Bg3 – 36-53 – (10YR 3,5/3,), -

2Cg – 53-84 – (10YR 4/3,5,), ,

3Cg – 84-155 – (10 YR 3,5/3,5,), ,

Plaggic Terric ; Irragric
 ,
 Hydragric ,
 . Hortic ,
 ;
 plaggic terric :
 ,
 plaggic terric ,
 , Irragric
 Irragric
 , Hortic
 (,
 25% Plaggic (pH_{KCl} 4-4.5),
 1-5% plaggic ,
 ; C/N 10-20,
 . 5-15 (+)/ ;
 . Irragric ;
 Irragric
 . Anthraquic
 hortie Fe²⁺ Mn²⁺

Hydragric Anthrosol,

			%	, %			%,	FeO, /
Apg1	0-10	44	42	14	5,5	4,5	5,5	3
Apg2	10-19	45	42	13	5,7	4,6	1,5	4
Bg1	19-25	44	43	14	6,5	5,1	1,0	13

Bg2	25-36	48	40	13	6,5	5,1	0,9	6
Bg3	36-53	54	34	12	6,4	5,2	0,6	4
2Cg	53-84	63	30	7	6,6	5,1	0,3	3
3Cg	84-155	50	43	8	6,8	5,1	0,3	4

3.5.

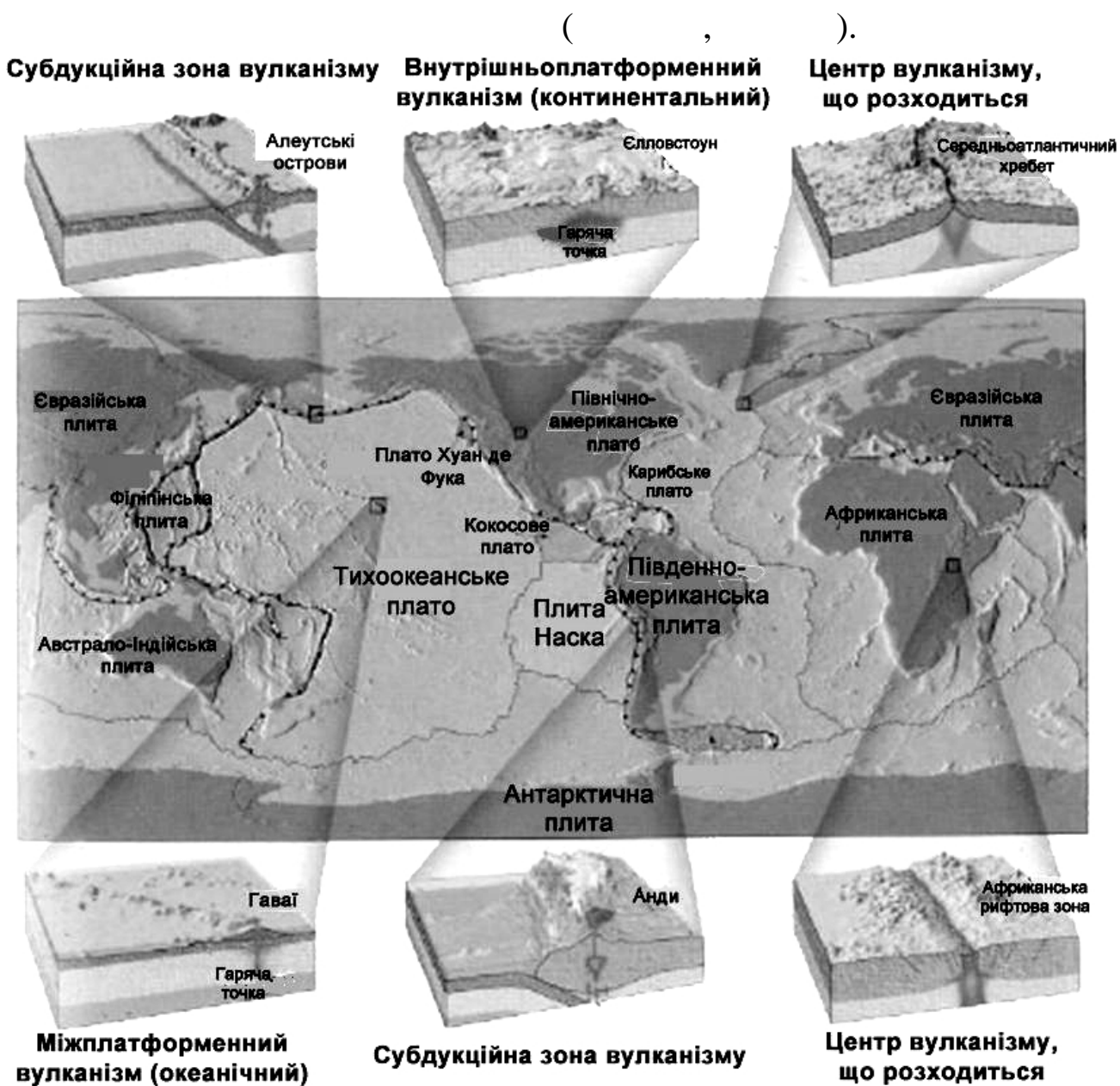
Plaggic

(-
,),
(, -
) . , ,
Plaggic ,
700-1100 / .
: 5000 / , 4500 /
5500 / 40-50
/ . Plaggic
. Plaggic -
() -
plaggic -

1950-
4. 3.

4.1.

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(. 8).
,
: - (65-75% Si₂),
(65-55% Si₂) - (55-45% Si₂).
Ca) (K₂O, Na₂O
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, ,
, ,



. 8.

(Robinson, 1975)

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40000

(Andosols).

4.2. (Andosols, AN)

4.2.1.

Andosols

: Andosols (), Andosols

Vitrisols (), And sols ()

1) vitric andic 25

2) (histic, fulvic, melanic, mollic, umbric, ochrik, duric cambic.

: Vitric, Silandic, Aluandic, Eutrisilic, Melanic, Fulvic, Hydric, Histic, Leptic, Gleyic, Mollic, Duric, Luvic, umbric, Arenic, Placic, Pachic, Calcaric, Skeletic, Acroxic, Vetic, Sodic, Dystric, Eutric, Haplic.

do -). (. an -

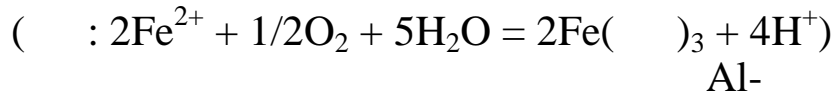
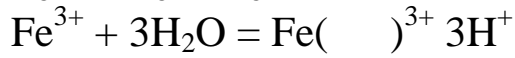
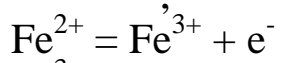
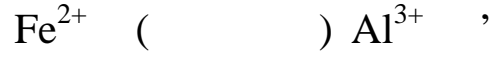
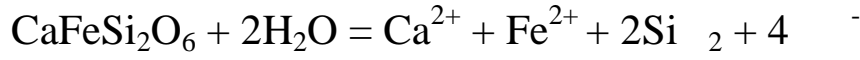
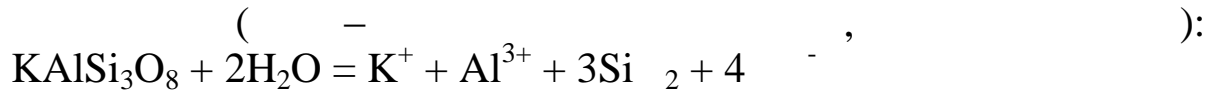
AC ABC.

(

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melanic-

Al-

(p > 5), Al-

2:1 2:1:1 (Al-

30%. 8%,

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.10.

Pachi-Silic

- Andosol (Umbric),

2,5

2350

12°

(Umbric-Vitric Andosol)

Ah1 - 0-30 - 3/2,

(7.5 YR

5,5; Ah2 - 30-65 - 7.5 YR 2.5/0,

(5 YR 3/4)

; p 5.0;

2AC - 65-88 -

(10 YR 3/1,)

p 5.5;

2C1 - 88-108 -

(10 YR 5/6,)

2C2 - 108-150 -

(10 YR 5/8,)

; p 5.5.

Gleyic

; stagnic

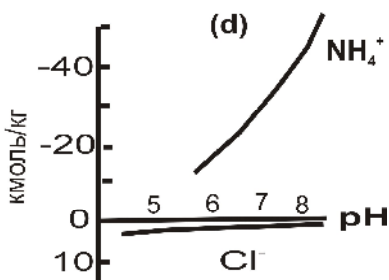
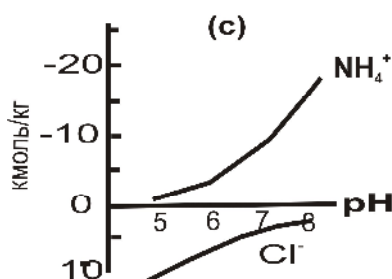
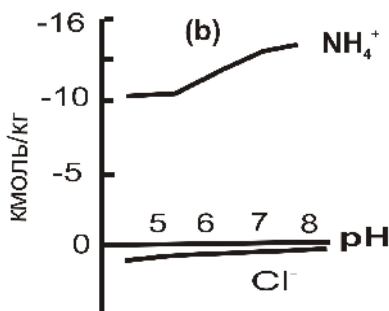
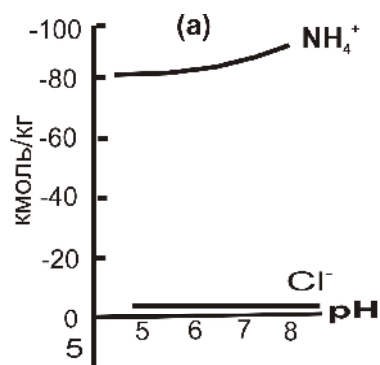
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),

, p ,

2:1 2:1:1.



. 11. NH₄⁺ Cl⁻

0.01 NH₄Cl

(0.1

): (a)

; (b) ; (c)

905 (Al:Si=2:1,

); (d)

(Al:Si=1:1) (Wada

Okamura, 1977)

(,,

”),

< 0.9 / 3,

0.3 / 3

1500 (

p



Ferralsols,

p (

) (. 11).

2:1 ; 2:1:1; Al-

8

Pachi-Silic Andosol (Umbric),

		%	%	%	/ 3			%	N %	(+)/	%
Ah1	0-30	53	28	19	0,48	4,8	4,3	15,9	0,16	61,7	2
Ah2	30-65	59	22	19	0,72	5,5	4,7	9,3	0,53	46,9	4
2AC	65-88	25	33	43	0,52	5,7	4,8	11,2	0,29	76,0	3
2C1	88-108	20	41	40	-	5,8	5,3	1,9	-	47,2	3
2C2	108-150	20	45	35	0,48	6,1	5,3	1,3	0,09	45,7	7

4.2.5.

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4.3.

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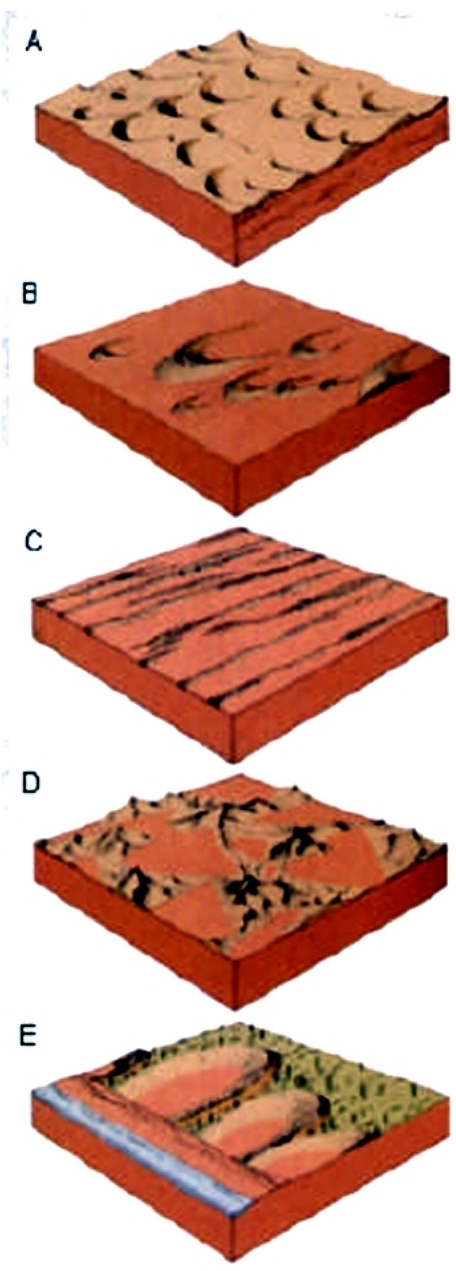
, ' (').

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(-),

E- albic,

albic



. 12.

D.

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 20000 13000
 800
 ()
 20000 13000
 (10500 10150).
 ()

4.4. (Arenosols, AR)

4.4.1.

Psammaquents
 argic spodic
 Grossarenic
 USDA.
 200
 Alfisol, Ultisol Spodosols.
 (CPCS, 1967)
 "Classe des sal minéraux bruts" "Classe des sal peu
 évolués". : siliceous,
 podsollic (), Arenosols ().
 1) 100 - :
 plinthic, petroplinthic salic

2) 50 100 ;
 35 % , ;
 100 ;

3) yermic, albic, plinthic, petroplinthic salic , ochrik, 50

: Gelic, Hyposalic, Gleyic, Hyperalbic, Plinthic, Hypoferralic, Hypoluvic, Tephric, Gypsic, Calcaric, Albic, Lamellic, Fragic, Yermic, Aridic, Protic, Dystric, Eutric, Rubic, Haplic.

_____ : (. arena –).
 _____ : , -
 ;

_____ : -
 ; -
 -
 (, ,)

_____ : (E)C.
 ochrik – . -

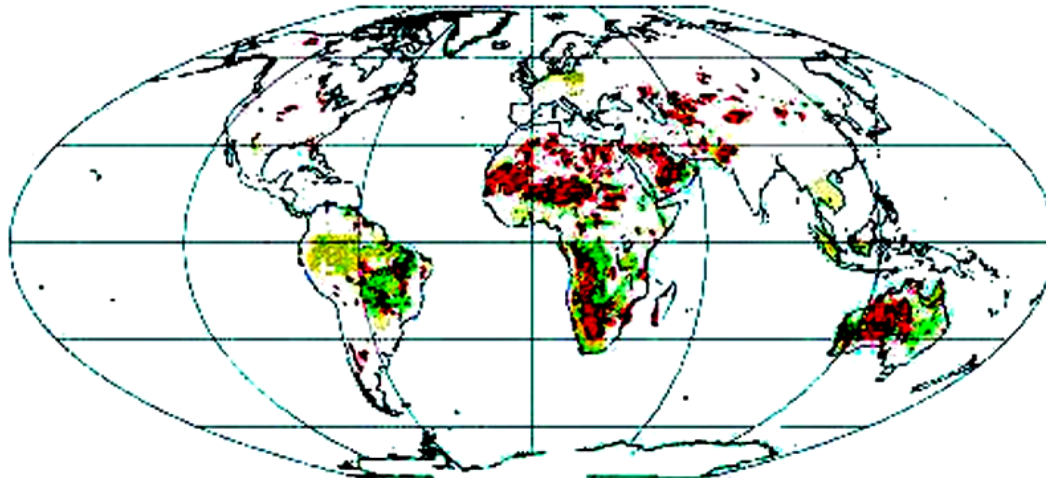
albic;
 , ,
 _____ : , . -

: , ; -
 . .

4.4.2.

900 . 7% ,
 (), -
 10 % . 30°

. . -
 (), -
 , -
 . -
 .



. 13. Arenosols

Arenic

Arenic
Arenic,

50

Histosols, Cryosols, Leptosols, Vertisols, Solonchaks, Podzols, Plinthosols, Solonetz, Chernozems, Kastanozems, Phaeozems, Gypsisols, Calcisols, Nitisols Cambisols.

Arenic

Vertisols.

Podzols

Arenic; Leptosols

Cryosols (Gelic Arenosols), Solonchaks (Hyposalic Arenosols), Gleysols (Gleyic Arenosols), Andosols (Tephric Arenosols), Podzols (Albic

Hyperalbic Arenosols), Plinthosols (Plinthic Arenosols), Ferralsols (Hypoferralic Arenosols), Gypsisols (Gypsiric Arenosols), Durisols (Hypoduric Arenosols) Calcisols (Calcaric Arenosols).

argic, ferralic spodic -
 Alisols, Acrisols, Luvisols Lixisols -
 argic (-
)
 200 Hypoluvic ,
 Arenosols Luvisols.
 ferralic, 170
 Ferralsols,
 spodic, -
 200 Podzols.
 Planosols Albeluvisols
 argic 100 ,

4.4.3.

/ ,
 E- albic -
 ,
 ochrik. Aridic
 0,2 %
) / (-
) (, -
 Yermic -
 Gypsisols, Calcisols, Solonchaks -

Durisol,

Gypsic, Calcaric, Hyposalic

Hypoduric

(Podzols).

Fe- Al-

spodic-

spodic-

(Bh),

ochrik,
ochrik-

(Bhs).

anthric (plaggic).

Anthric (Plaggic).

Anthrosol,

anthric-

50

” ” ().



, . -
 , . -
 , . -
 , 15 100 -
 , „lamellic”. -
 , , -
 . -
 . -
 ; ochrik- -
 (<10⁻⁵) , -
 , , -
 , , -
 , . -
 , ochrik- ;
 , gleyic / -
 , . -
 (Albic) , -
 , albic -
 spodic- 100 (Hyperalbic). -
 , 200 , -
 , spodic- , -
 (,) , -
 . - ; -
 . -

4.4.4.

Orthieutri-Rubic Arenosol,

D. Creutzberg . Scholz.

ochric.

, 160

Al – 0-5 –

(5YR 5/8,)

Ah2 – 5-20 –

(5YR 5/8,)

Bw1 – 20-40 –

(2.5YR 5/8,)

Bw2 – 40-120 – 2YR 5/8



Albic Arenosol ()



Dystric Arenosol (Podzols)

.14.

C-

ochrik-

O-

(,, ”).

9

Orthieutri-Rubic Arenosol ()

			%	%				N		%
Ah1	0-5	97	3	0	7,1	6,1	0,3	0,01	0,7	29
Ah2	5-20	96	2	1	7,4	6,1	0,2	0,01	0,9	33
Bw1	20-40	95	3	1	7,3	6,0	0,2	0,01	0,7	57
Bw2	40-120	94	4	2	7,7	6,0	0,2	0,01	0,7	71

100
 () .
 (15-17 %).

(3-4 %),

;

300 30000 /
 2.5 25 / . 250
 (0.01-0.1 /).

(, , , , ,)
 (, , , , ,)
 (, , , , ,)

1.7 / 3 .
 / 3 ,
 (1.5 2.65 36-46)

O-

2-3 %.

1%, 10-20

(+)/

0.5 % (<0.2 % -).

(/ ;)

4.4.5.

< 300

>300

300-600

Albic Arenosols.

spp.) (, Agathis
 .
 ,
 .
 ; —
 , , ,
 .
 — ,
 .

4.5.

), () ()
 2:1,
 , Mg⁻ Na-
 , ,
 .
 —
 12000 8000
 (,
 40 , —)
 , ” ”
 ,
 ,
 .
 ,
 ,
 .
 , 5000 ,
 ,
 .

Vertisols.

(14000-9000 . .).

vertic-

,

,

()

,

, g Na

(, g, Na) -

vertic-

4.6. (Vertisols, VR)

4.6.1.

2:1.

Vertisols (. vertere

),

(

(),

(),

(

,

:

- 1) vertic-
- 2)

100 ;
20

100 , 50 100 (-
lithic paralithic, petrocalcic, petroduric
) 30 % ;

petrogypsic



.15. 3) , ³ (.15).

- : Thionic, Salic,
- Natric, Gypsic, Duric, Calcic, Alic.
Gypsic, Grumic, Mazic, M s trophic,
Hyposodic, Eutric, Pellic, Chromic,
Haplic.

: (. vertere -

).

: , ,

: () , -

: - (B)C. / .

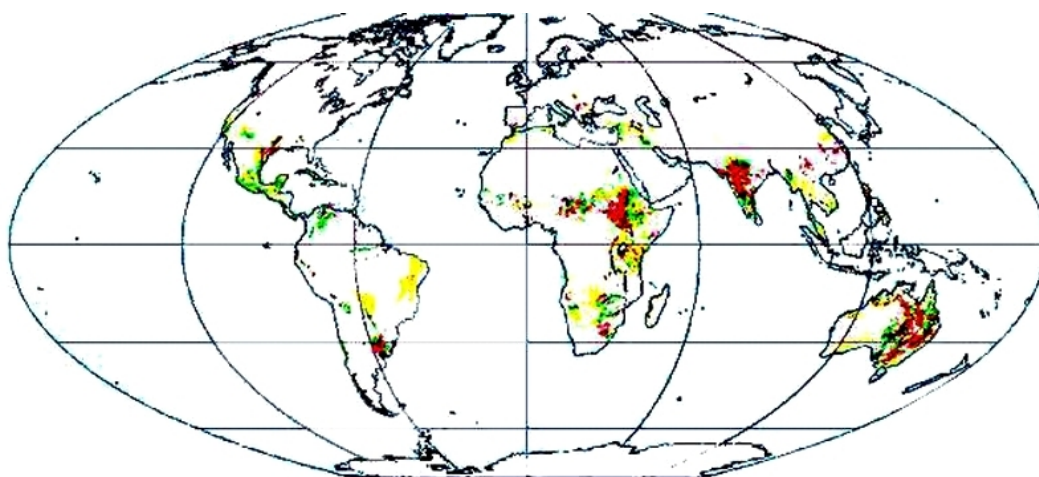
: . , .

4.6.2.

200 . - ; 335 . . 150
500 1000 ,

3 -
(grumic), , -

3000



. 16.

Vertisols

vertic-

Vertisols.

vertic-

vertic-

vertic (

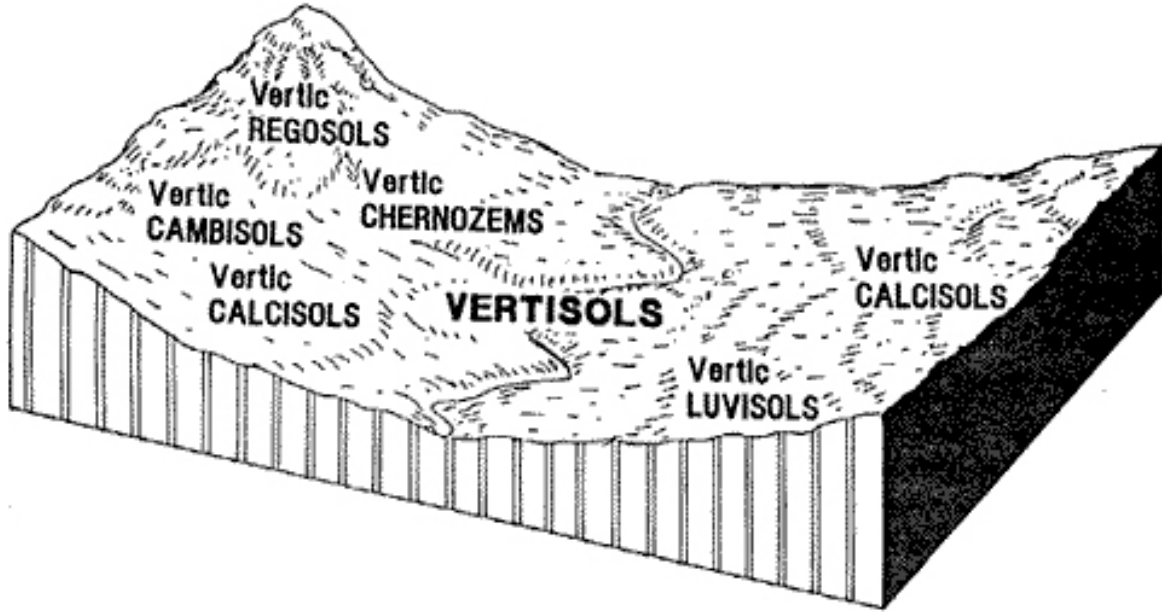
Vertic

Calcisols, Luvisols, Cambisols)

(.17).

(Calcisols, Gypsisols, Solonchaks)

Phaeozems



. 17.

Nitisols / Luvisols () Planosols ()

Vertisols Solonetz, (Luvisols)

Vertisols.

Solonetz / Planosols
Fluvisols, Gleysols (

Histosols)

Solonchaks.

4.6.3.

vertic-

Ca²⁺ Mg²⁺ p

Ca²⁺ Mg²⁺

Fe²⁺ Fe³⁺

Fe³⁺ Al-

p

1) ;

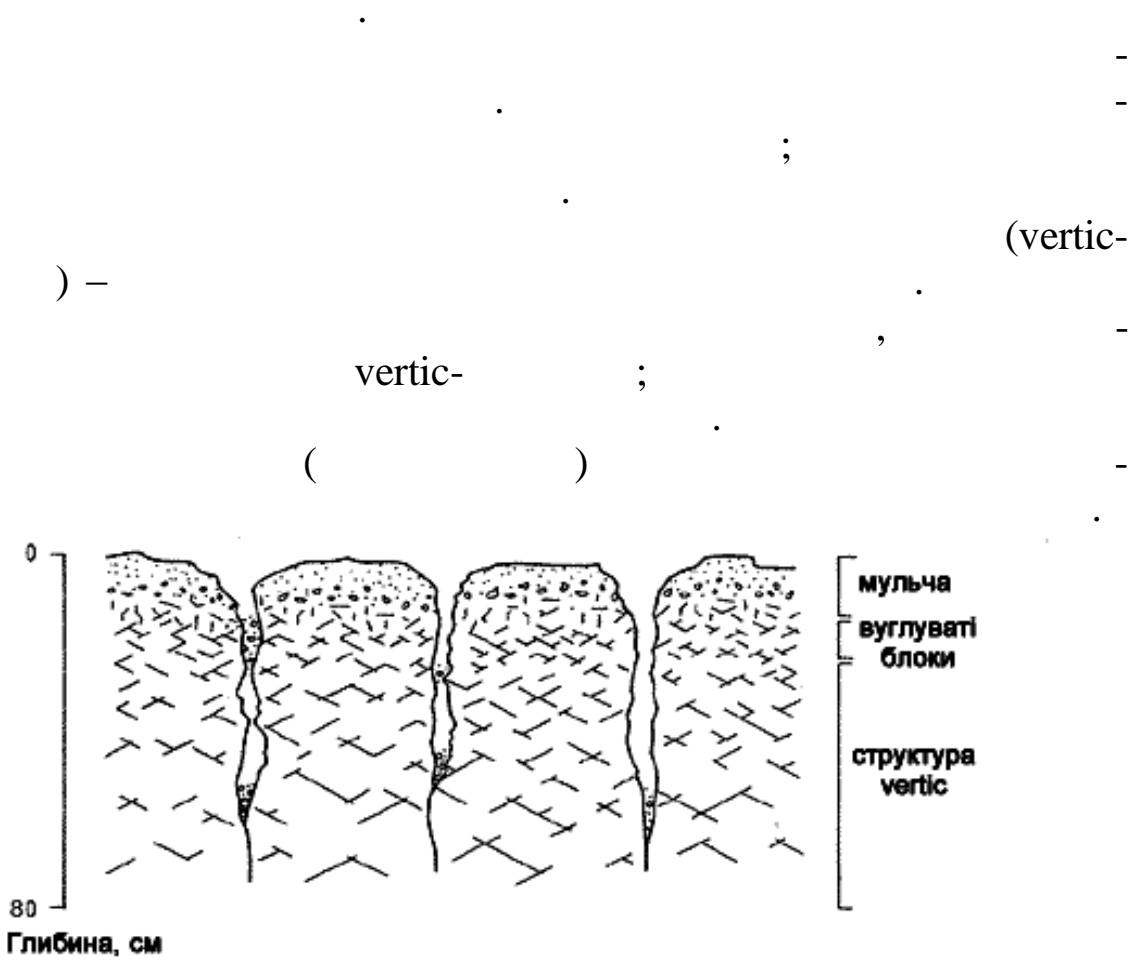
2) ;

(. 10).

(Luvisol) (Vertisol)

	ABC	-	-	p			%	SiO ₂ /Al ₂ O ₃	%	%
					(+)	/				
LUVISOL	A	0-10	4	6.6	-	-	-	3.8	0.5	0
	AB	10-30	15	6.1	9.0	60	71	3.3	0.6	0
	Bt1	30-60	23	4.7	15.5	68	49	3.5	0.3	0
	Bt2	60-85	33	4.5	21.4	66	45	3.3	0.3	0
	Bt3	85-105	43	4.5	22.6	50	51	3.1	0.2	0
		105-135	39	4.4	27.4	69	47	3.0	0.1	0
	C	135-160	39	4.7	27.4	71	57	3.2	-	0
VERTISOL	A	0-30	78	6.6	66.6	86	100	4.3	0.9	0.7
	Bw1	30-90	78	7.2	78.4	100	100	4.6	0.9	1.2
	Bw2	90-150	81	7.3	78.2	96	100	4.6	0.7	1.2

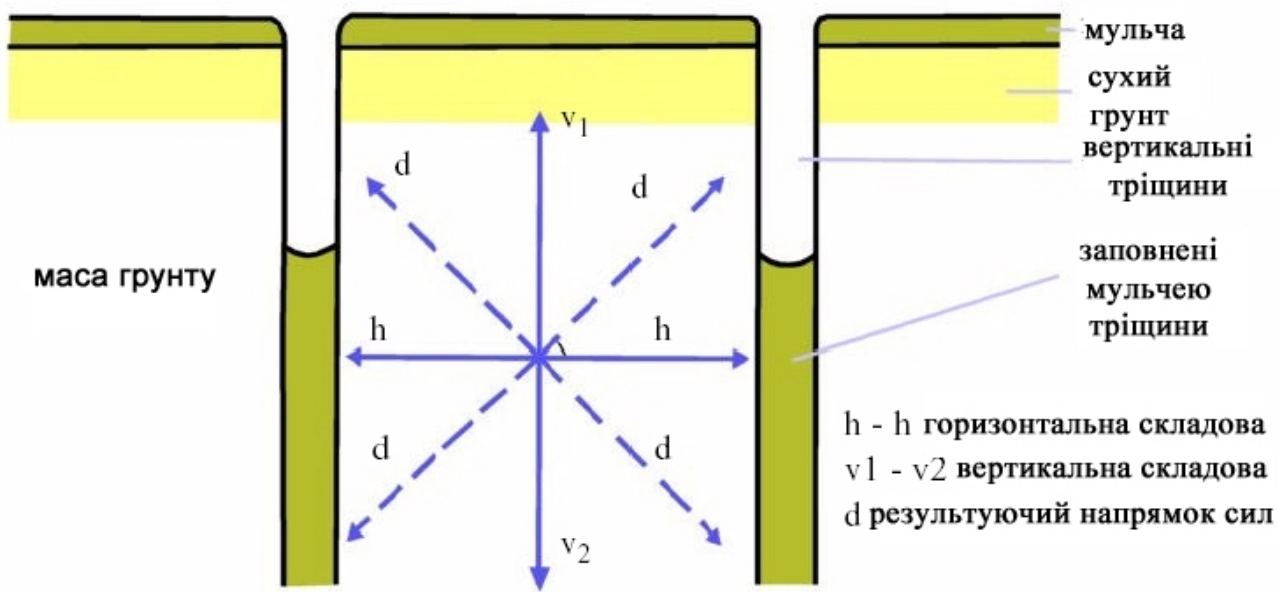
BCwk	150-180	79	7.3	80.2	103	100	4.5	0.4	1.5
------	---------	----	-----	------	-----	-----	-----	-----	-----



. 18.

(. 18).

(20-30°)



„vertic” (. 19).

. 19.

(De Vos Virgo, 1969)

1)

().

2)

vertic-

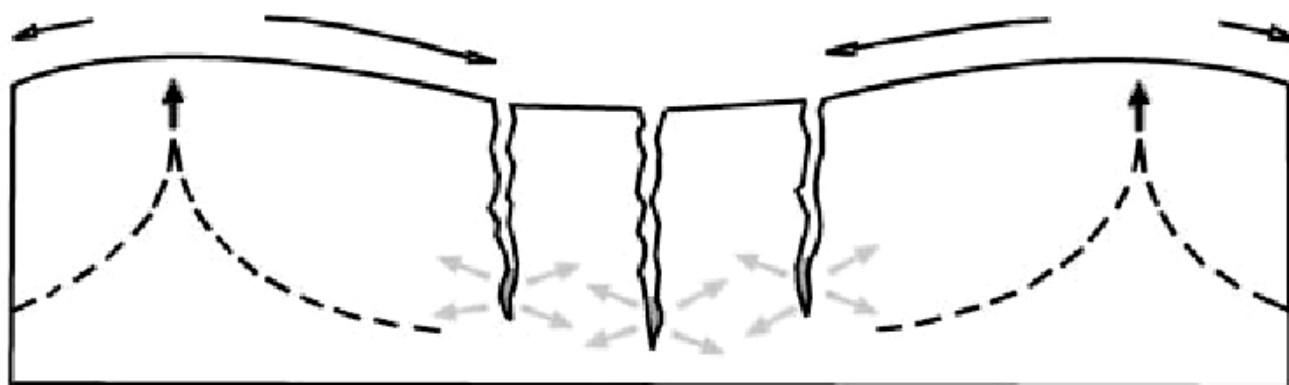
15-20

, vertic-
vertic-

1. , : , ,
 . - , -
 . -
 , -
 , -
 2. (-
) -
 , -
 , -
 3. , -
 , -
 . -
 ; -
 , -
 . -
 vertic, -
 , -
 -
 , -
 (-
) -
 , -
 , -
 , -
 , -
 vertic- -
 , -
 ; -
 . -
 : -
 , -



(. 20).
 .20.



тріщини висушування,
 частково заповнені
 поверхневим ґрунтом — напрямок руху
 маси — деформація зсуву

. 21.

(Beinroth, 1965)

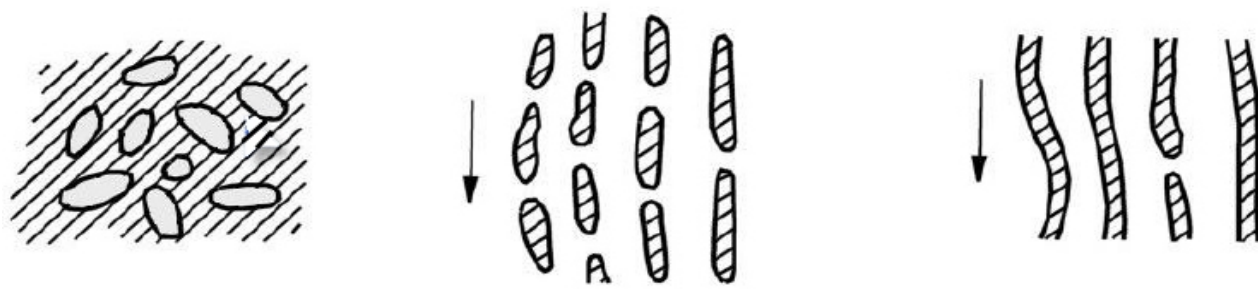
1.



”

2.

” (.21).

) – 2 8
– 15 50 . .22 ;



 мікро-гребінь
 напрям схилю

.22.

700

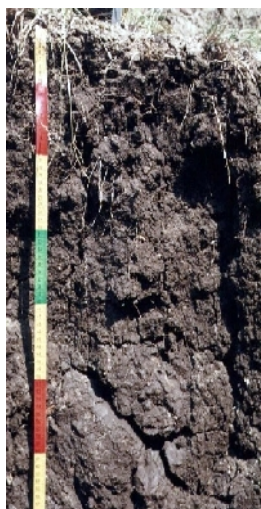
150 1000

500-1000

120

240

Vertisols (4.6.4. (B)C-



23. Grumi-Calcic Vertisol (N.Koroxenides). Vertic Calcic. 1

Ap - 0-21 - (10 YR 3.5/3,)

AC1 - 21-52 - (10 YR 4/3,)

AC2 - 52-65 - (7.5 YR 4/4,)

Ck1 - 65-104 - (7.5 YR 5/6,)

Ck2 - 104-135 - (7.5 YR 5/6,)

Ck3 - 135-150 - (7.5 YR 5/6,)

Grumi-Calcic Vertisol ()

		%	%	%			3,	%	N
Ap	0-21	5	49	46	7,6	6,5	3,9	1,0	0,08
AC1	21-52	5	35	60	7,9	7,0	4,0	0,8	0,07
AC2	52-65	3	43	54	8,3	7,6	14,0	0,4	0,04
Ck1	65-104	3	47	50	8,5	7,6	29,5	0,2	0,02
Ck2	104-135	8	47	45	8,6	7,8	24,2	0,2	0,02
Ck3	135-150	8	33	59	8,7	7,7	24,8	0,1	0,02

	(1 – ; 8 –)					
Ap	4	3	4	4	3	3
AC1	4	3	4	4	3	3
AC2	4	3	4	4	3	2
Ck1	4	3	3	4	4	3
Ck2	4	3	3	4	4	2
Ck3	4	3	3	4	4	2

), .

.

(- ,).

.

1. .

150%, - 300%.

,

(,),

2. .

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(,),

3. .

50%

4.

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5.

Grumic

6-9

0.3

4-5 10 ;

()

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”(

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”

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-

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-

.

-

.

-

(Calcic, Gypsic Duric).

1-4

Alic Chromic

/

()

5.

4.

5.1.

105-106



103-105

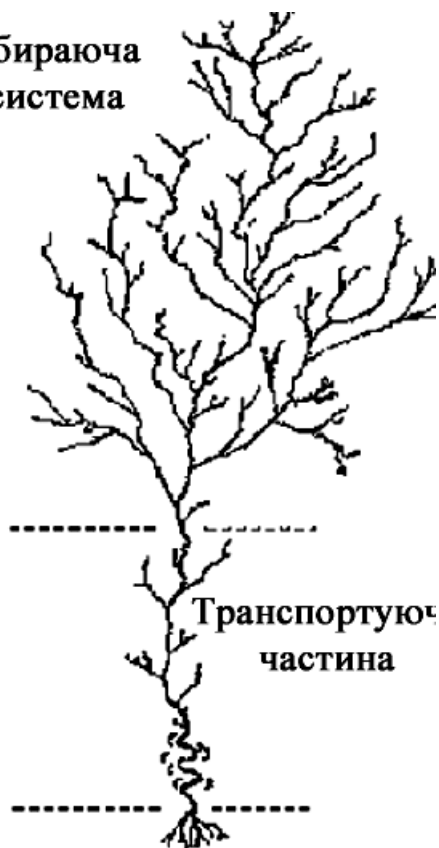
120

135

6000

15 %

Збираюча система



Розсіювальна система

(. 24):

1.

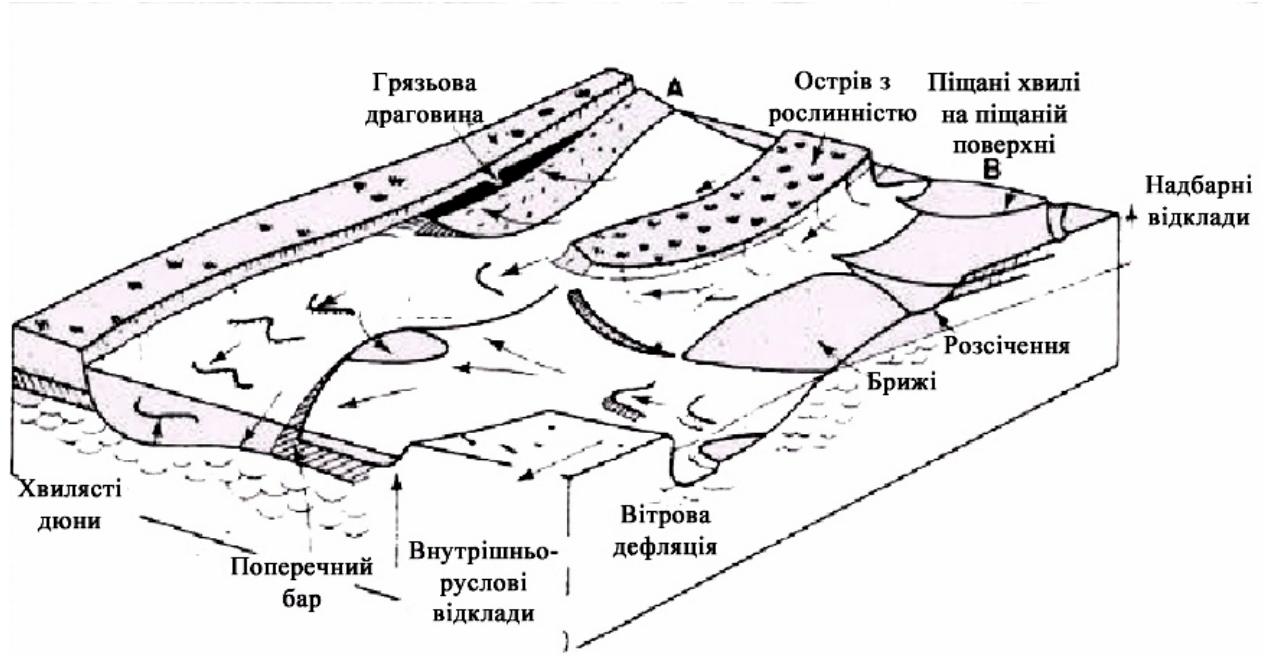
V-

2.

. 24.

3.





. 25.

(),

. В -
Middleton Murray, 1972)

(Blatt,

(.25 .)

()



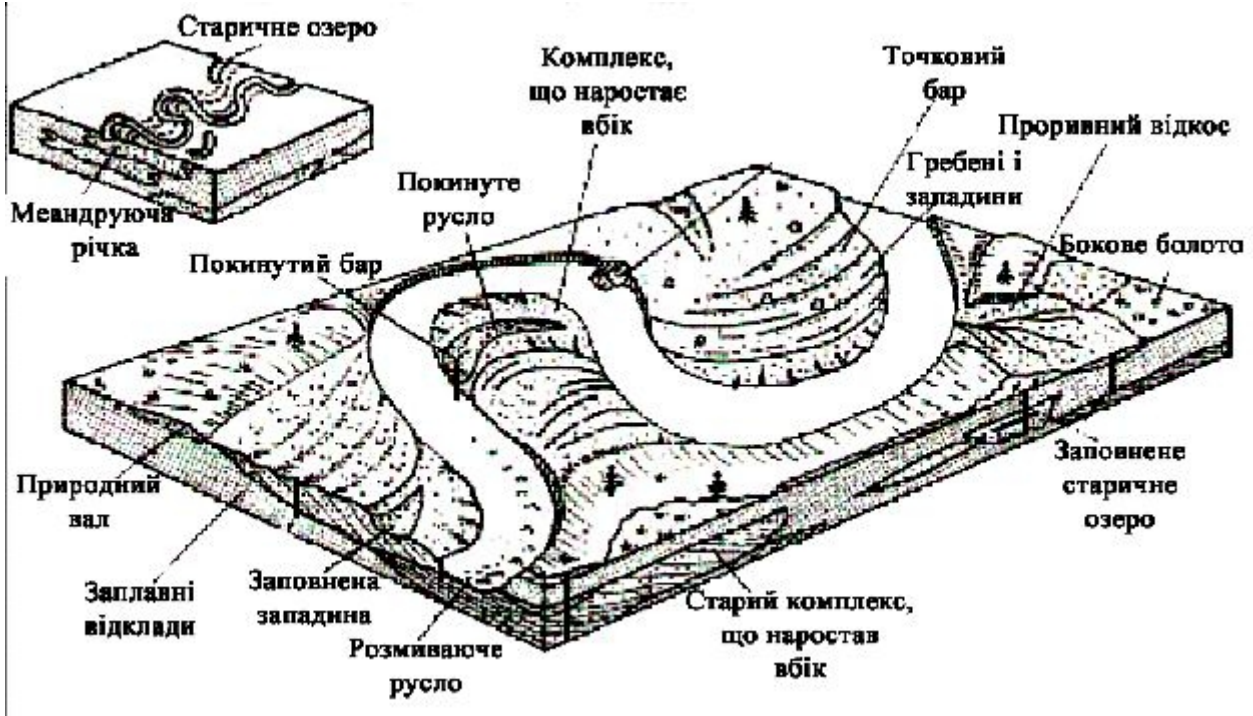
”
Nichols (1999)

.26.

(.26).

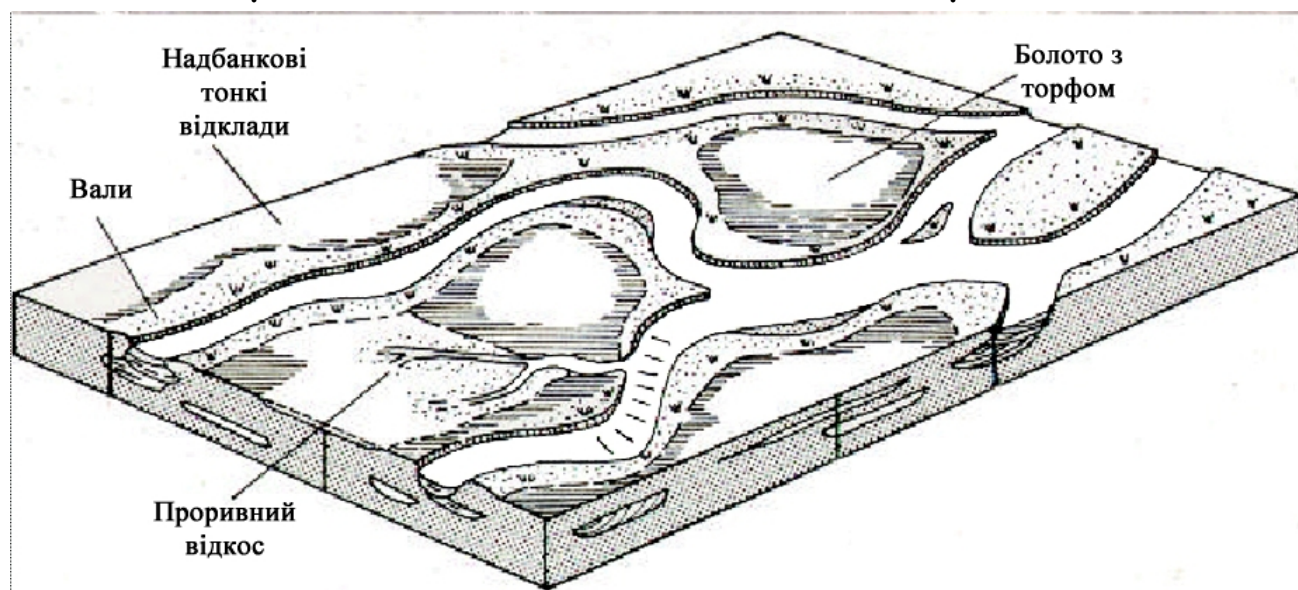
(, ,) (.27).

(, ,)



. 27.

(Allen, 1964)



. 28.

6000

(. fluvius –),
 : (,), Fluvents
 (), (), Auenböden (-
) Sal minéraux bruts d'apport alluvial ou colluvial Sal peu
 évolués non climatiques d'apport alluvial ou colluvial ().

- 1) 25 ;
- 2) fluvic 50 -
- 3) 50 ; histic,
 mollic, ochrik, takyric, umbric, yermic, salic sulfuric.
 : Thionic, Histic, Gelic, Salic, Gleyic, Mollic,
 umbric, Arenic, Tephric, Stagnic, Humic, Gypsiric, Calcaric, takyric,
 Yermic, Aridic, Skeletic, Sodcic, Dystric, Eutric, Haplic.

fluvius –).

: AC- Ah- ;

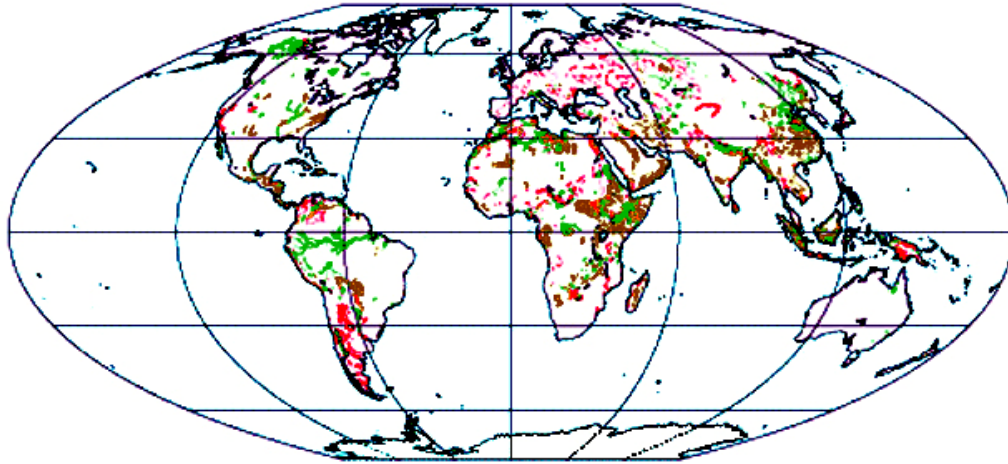
Al- . Thionic

5.2.2.

350 . ,
 -
 , - ;
 , - / , , -
 , , , , - , ;
 , ().

Thionic ()

(, ' ,) , (, - , -) (, -) .



.29.

Solonchaks, Regosols.

– Arenosols, Cambisols, Gleysols – Leptosols

5.2.3.

– , fluvic- . , / .

– , . , ; .

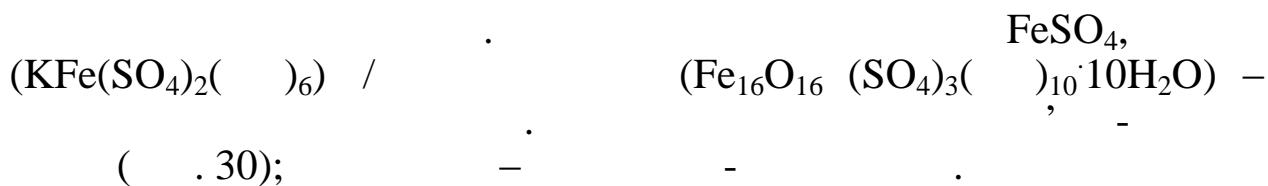
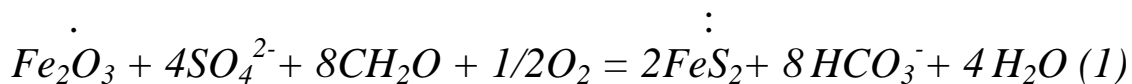
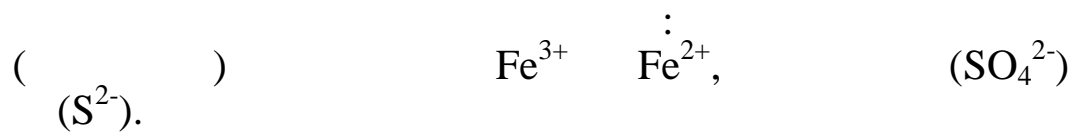
cambic- , () .

Thionic ()

Thionic

– .

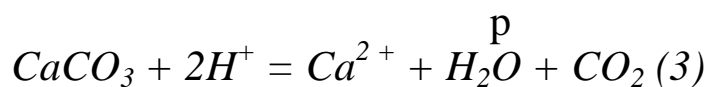
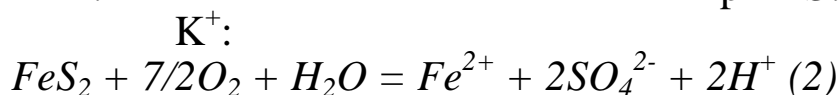
- 1) ;
- 2) ();
- 3) -
- 4) - ;
- 5) -
- 6) ();
- 7) -



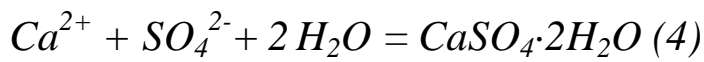
Thionic

<3,5.

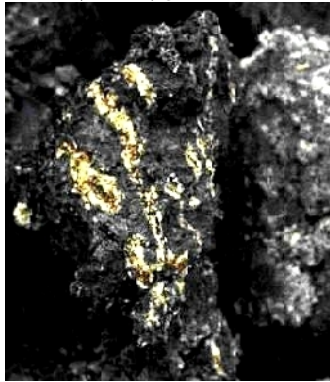
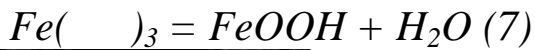
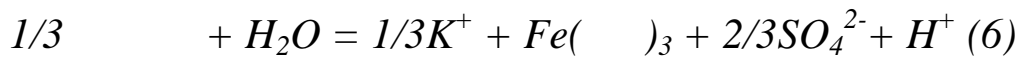
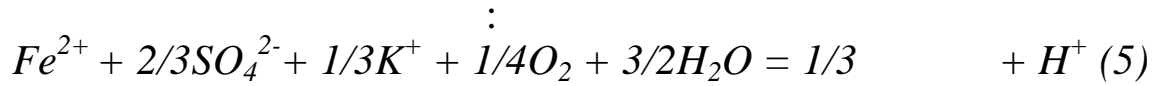
p <3.5



:



p . , , (2);



. 30.
Orthithionic
Fluvisol,

3-4,

Al³⁺-

. Mg, Fe Al

5.2.4.

AC

() /

Gleysols, fluvic-

50

Thionic Fluvisols.

fluvic-



. 31.

Thionic

Orthithionic Fluvisol

W.van
umbric, sulfuric,

der Kevie.
sulfidic

	5			
Apg – 0-27	–	(10YR 2/1,),	;
	–	(5YR 4/8)	;	;
				=4.8;
Bg1 – 27-48	–	(7.5 YR 5/2),),	;
	–	(10 R 4/6)	(7.5 YR 5/8)	;
				;
Bg2 – 49-64	–	8.5 YR 5/2,		;
				;
		(10 R 4/8)		;
6/8)	;			(7.5 YR

; =4.0;
 Bg3 – 64-93 - 8.5 YR 5/2, ; -
 (7.5 YR 6/8) ;
 ; =4.0;
 Bg4 – 93-150 - 8.5 YR 4/2, ; -
 ; =4.0.

12

Orthithionic Fluvisol,

		%	%	%			%	N
Apg	0-15	2	31	67	4,1	3,5	1,8	0,17
Bg1	27-48	8	31	61	3,6	3,1	0,6	0,07
Bg2	64-93	5	31	64	3,6	3,1	0,6	0,06
Bg3	93-150	0	30	70	3,8	3,2	1,4	0,06

12

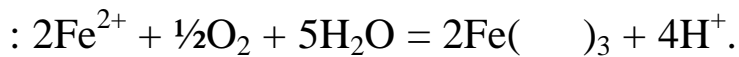
	(+) /				(+) /		(+) /	%	Al, %
	Ca	Mg	K	Na	H+Al	Al			
Apg	7,8	3,7	0,3	0,3	5,1	4,2	34,6	34	12
Bg1	6,8	3,4	0,1	0,0	8,3	6,9	30,4	34	23
Bg2	5,7	3,8	0,1	0,0	8,6	7,3	30,3	32	24
Bg3	6,3	4,3	0,3	0,0	10,2	8,7	34,4	32	25

p :

p =4,

p

Fe²⁺.



N (

);

H₂S,

() –

H₂S.

5.2.5.

(, H₂S).



(< 60

13

13

10 (Dent Raiswell, 1982)

, / 3	10 , /						10) (
	0,5	1	1,5	2	3	4	
0,6	9	19	28	37	56	74	11
0,8	12	25	37	50	74	112	14
1,0	16	31	47	62			19
1,2	19	37	56	74			22

10 (

28 ((1.5 % 1.0 / ³)

10

5.3. (Gleysols, GL)

5.3.1.

Gleysols

Inceptisols Mollisols (), Gley (), Aqu Entisols,

- 1) gleyic- 50 ;
- 2) anthraquic, histic, mollic, ochrik, takyric, umbric, andic, calcic, cambic, gypsic, plinthic, salic, sulfuric vitric 100 ;
- 3) 100

: Thionic, Histic, Gelic, Anthraquic, Vertic, Endosalic, Andic, Vitric, Plinthic, Mollic, Gypsic, Calcic, umbric, Arenic, Tephric, Stagnic Tephric, Abruptic, Humic, Calcaric, takyric, Alcalic, Toxic, Sodic, Alumic, Dystric, Eutric, Haplic.

(_____ :
_____ - _____).

_____ :
_____ :
_____ : A(Bg)Cr H(Bg)Cr.

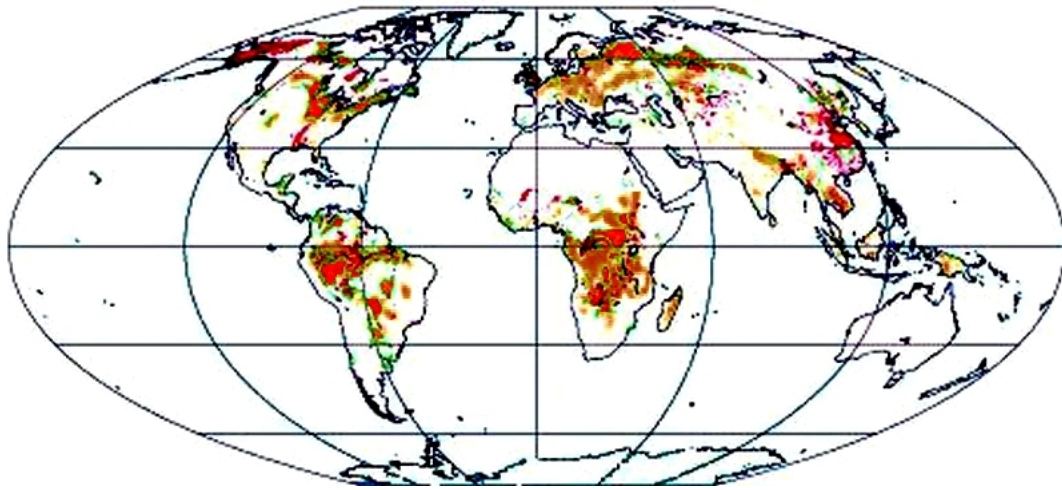
50 :
_____ :

5.3.2.

720

200

(. 32).



. 32.

Luvisols Cambisols.
Phaeozems.

Solonchaks Solonetz.

(– Calcisols, Gypsisols, Cambisols, Regosols,
Arenosols Leptosols)

Acrisols, Lixisols, Nitisols, Alisols Ferralsols

5.3.3.

50

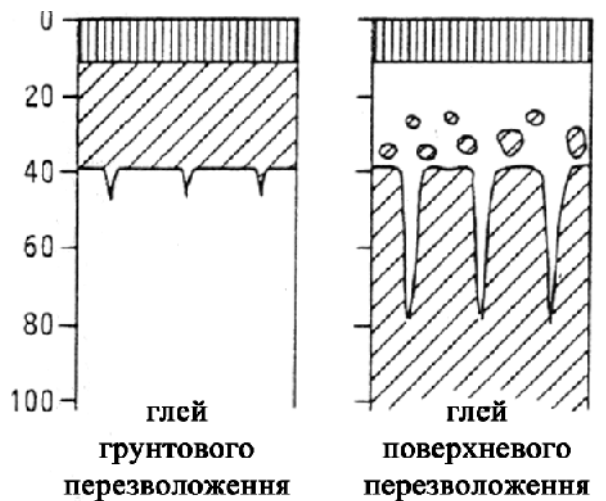
()

2.5Y.



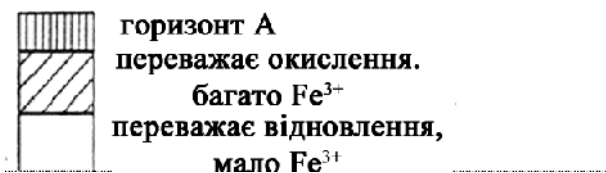
()

„gleyic-”



95 %

5 %



. 33.

gleyic stagnic

Gleyic-

(. 33).

stagnic-

stagnic-

stagnic

gleyic

)

stagnic

albic

Anthraquic

: 1)

) 2) anthraquic

Anthraquic

Anthraquic

5.3.4.

Ah-

Bg-

Bg-

(Fitzpatrick, 1986).



**.34. Eutric
Gleysol;**

(H.

Eutric Gleysol

A.J. van Kekem.

ochric A, cambic B, gleyic

- A-0-12 – (10 YR 4/3,);
- Bw-12-37 – (10 YR 6/4,);
(7.5 YR 5/8) ;
- BCg-37-50 – (10 YR 7/3,);
(7.5 YR 5/8) ; (5 Y 7/7)
- Cr1-50-75 – (5 Y 7/1,);
(7.5 YR 5/8) ;
- Cr2-75-100 – 10 Y 8/1, ;
(10 YR 6/6) ;
- Cr3- 100-120 –10 Y 7/1, ;

$$\text{Fe}^{2+}/\text{Fe}^{3+}$$

14

Eutric Gleysol,

		%	%	%			%	N
								%
A	0-12	77	13	10	4,2	3,7	1,6	0,08
Bw	12-37	73	12	15	4,4	3,9	1,2	0,02
BCg	37-50	72	13	15	4,7	4,0	0,8	0,03
Cr1	50-75	74	11	14	4,6	3,9	0,3	-
Cr2	75-100	73	11	16	4,7	3,9	0,3	-
Cr3	100-120	54	21	25	4,7	3,8	0,2	-

14

		(+) /				Al, (+) /	(+) /	%	Al, %
		Ca	Mg	K	Na				
A	0-12	1,2	0,2	0,1	0,3	0,7	4,7	38	15
Bw	12-37	1,4	0,2	0,0	0,1	0,7	3,2	53	22
BCg	37-50	1,0	0,2	0,1	0,3	0,4	3,0	53	13
Cr1	50-75	1,0	0,1	0,0	0,1	0,4	1,6	75	25
Cr2	75-100	1,0	0,1	0,0	0,1	0,4	4,0	30	10
Cr3	100-120	1,4	0,3	0,0	0,2	1,1	3,3	58	33

5.3.5.

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 , Thionic
 , Thionic . Thionic

5.4.

- 1) () , - :
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- 2) () -
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- 3) , ()
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) 10000 (in situ -
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 . Leptosols Regosols. -
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Leptosols Regosols.

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 10000-12000 , .

Cryosols, Leptosols Regosols.

5.5. (Leptosols, LP)

5.5.1.

Leptosols

, / , -
 / -
 .
 , (,)
 , .

;

1) mollic- 10 25 25

40 %; 75 ; 10% ()

2) umbric, yermic. mollic, ochrik,

: Lithic, Hyperskeletal, Rendzic, Gelic, Vertic, Gleyic, Mollic, umbric, Humic, Aridic, Gypsic, Calcaric, Yermic, Dystric, Eutric, Haplic.

: (leptos -)

: 10%.

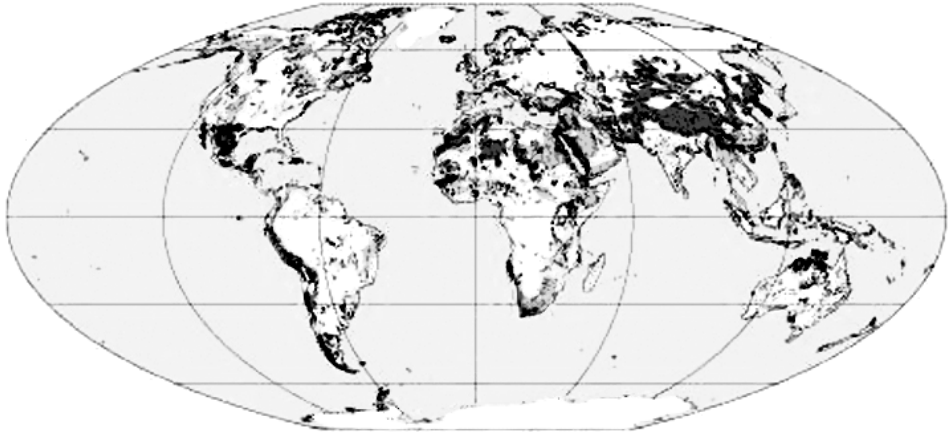
:

: (B)R (B)C

mollic

:

5.5.2.



.35.

1655 . Leptosols

Leptosols (10%)
WRB
petrocalcic petroplinthic.
10% 75
Leptic

Leptic

"Leptic"

25 100

Histosols, Anthrosols, Vertisols, Fluvisols, Solonchaks, Gleysols, Podzols, Plinthosols, Ferralsols, Solonetz, Planosols, Chernozems, Kastanozems, Albeluvisols, Alisols, Nitisols Arenosols.

Leptic Histosols, Vertisols Podzols,

Leptic Fluvisols, Solonchaks, Gleysols, Plinthosols, Ferralsols, Solonetz, Planosols, Chernozems, Kastanozems, Albeluvisols, Alisols Nitisols,

Leptic Arenosols

50 100

25 100 Areni-Leptic Regosols.

Leptosol

Leptosols Cryosols (Gelic Leptosols), Gleysols (Gleyic Leptosols), Umbrisols (umbric Leptosols), Phaeozems (Mollic Leptosols), Regosols (Hyperskeletal Leptosols) Gypsisols (Gypsic Leptosols).

andic, spodic, argic cambic histic,
petrocalcic, petrogypsic, petroduric petroplinthic
25 Leptosols,
Calcisols, Gypsisols, Durisols Plinthosols

histic (, , 10 ,
). Lithic Leptosols;
 10 , (Leptic) Histosols.

cambic.
 Leptosol Cambisol, -
 cambic- (, 15 ,
 25).

Andic Leptosols, ,
 tephric 10 % , -
 Leptosols Andosols.

spodic ,
 Podzol ,
 Leptosols. () Leptosols, -
 25 , -
 (Leptic) Podzols.

argic , -
 Leptosols, -
 (-
 7,5) argic. -
 (Leptic) Luvisol (Acrisol Lixisols) -

Gleyic .
) Leptosols, (-
 , 10 % () -
 75 . Stagnic , , -
 25 -
 , 10 % 75 ,
 Leptosols stagnic .

5.5.3.

- , -
 B- , , -
 Rendzic Mollic - . -
 , Rendzic .

. Umbric -
-

5.5.4.



(B)C (B)R -
Mollic . Rendzic -
- -
- -
Rendzic .

.36.

- Calcari-Lithic Leptosol - , -
- Rendzic Leptosol , ; -
- 40% , . -

Calcaric Leptosol

D. Creutzberg 6

ochric

Ah - 0-14 - 10YR 4/7, , , - ; ; =5,8;
R - 14 - ;

Hyperskeletic . Stagnic

Calcaric Leptosol,

		%	%	%			% ³	% ²	N ² %
Ah	0-1	57	30	13	6,7	5,8	-	2,9	0,25
	1-12	54	32	14	6,6	4,6	2,2	0,8	0,07
	12-20	66	25	10	6,8	3,7	3,4	0,1	0,02
	20	-	-	-	3,4	2,7	-	5,3	0,24

5.5.5.

Rendzic

(Lithic, Umbric Dystric)

5.6. (Regosols, RG)

5.6.1.

Regosols –

, Regosols –

ochrik,

(Leptosols),
(Fluvisols).

(Arenosols)

. Regosols

Rhb d n (), Sal peu evolues regosoliques d' r s n
Sal mineraux bruts d' rt eolien ou volcanique ().
, Regosols

Regosols –
ochrik,

fluvic

: Gelic, Leptic, Hyposalic, Gleyic, Thaptovitric,
Thaptoandic, Arenic, Aric, Garbic, Reductic, Spolic, Urbic, Tephric,
Gelistagnic, Stagnic, Humic Gypsiric, Calcaric, takyric, Yermic, Aridic,
Hyperochrik, Anthropic, Skeletic, Hyposodic, Vermic, Dystric, Eutric,
Haplic.

_____ : (. rhegos –).

_____ :

_____ :

_____ : AC-
ochrik.

_____ :

. Regosols

5.6.2.

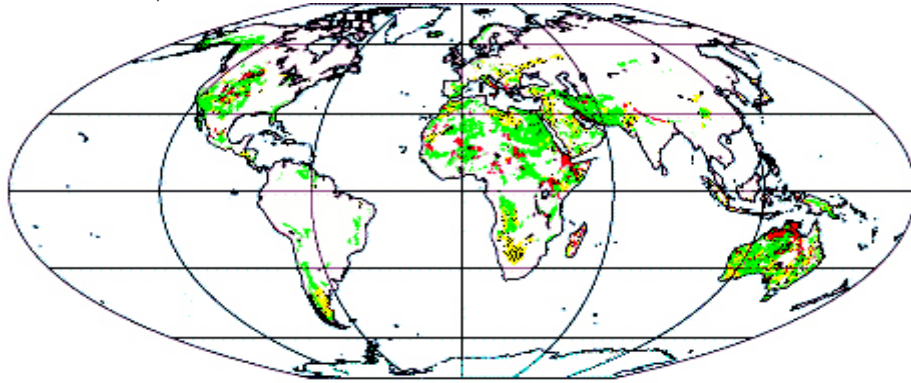
260

50

36

, Regosols

Cryosols (), Andosols, Leptosols Umbrisols ()
 (), Calcisols Gypsisols (), Arenosols Podzols
 () Cambisols.



. 37. Regosols

5.6.3.

: 1) ,
 / ; 2)
 ; 3)

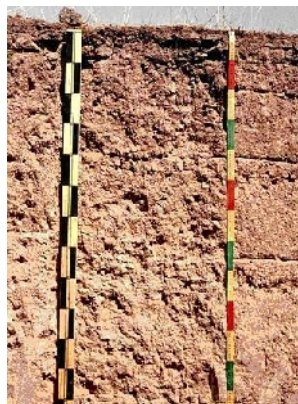
ochrik

Regosols.

5.6.4.

(
)
 : - ,
 ,

ochrik),
 T
 T ;
 T



.38. Hyperochric Regosol ()

ochrik
 T
 T) ;
 T ;
 T ;
 T Regosols

Tephric Regosol

J. Quispe, A. Reyes
 ochric

Ap -0-10 - (10YR 6/2,), (10YR 3/2,),
 p 7.0;
 Ah -10-25 - (10YR 5/3,), (10YR 6/2,),
 AC -25-53 - (10YR 5/3,), ; p 6.5;
 Cl -53-97 - (7.5YR 6/4,), ; p 6.5;
 C2 -97-150 - (7.5YR 7/4,), ; p 7.0.

Tephric Regosol,

		%	%	%				%	N
Ap	0-10	84	12	4	0,95	7,8	7,4	0,6	0,06
Ah	10-25	78	18	4	1,15	7,3	6,7	0,4	0,04
AC	25-53	78	19	3	1,16	7,2	6,5	0,3	0,03
Cl	53-97	72	23	5	1,09	7,6	7,2	0,1	-

5.6.5.

500-1000

750

6. 5.

6.1. (Cambisols,)

6.1.1.

Cambisols

Braunerde

(), Sols bruns (), / Cambisols; Inseptisols.

T cambic ;

T mollic , 100 ;

T : andic, vertic vitric, ; plinthic, petroplinthic, 50 100

salic sulfuric ,

: Andic, Aridic, Calcaric, Chromic, Dystric, Endosalic, Eutric, Ferralic, Fluvic, Gelic, Gelistagnic, Gleyic, Gypsic, Haplic, Hyper chric, Leptic, Mollic, Plinthic, Rhodic, Skeletic, Sodic, Stagnic, takyric, Vertic, Vitric, Yermic.

_____:

(. cambiare –).

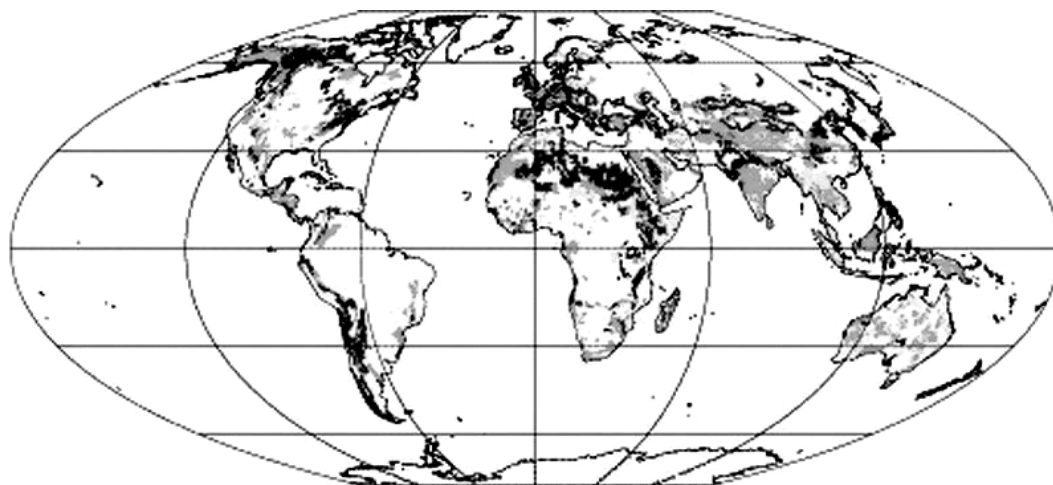
_____:

_____:

_____ : ABC.

_____:

6.1.2.



.39.

1,5

Ferralsols).
 Luvisols
 Acrisols

6.1.3.

B- argic, natric, spodic ferralic
 B- cambic,
 ”. cambic ”
 cambic — C-
 Cambic C-
 /
 (, , ,)

(,).
-
-
-
Fe, Al,
cambic;

cambic,

6.1.4.

ochrik, mollic

umbric

cambic B-

ABC

). Cambisols

(

cambic,

Othi-Dystric Cambisol

D. Creutzberg
ochric, cambic

0-0-5 -

; ;





Ah – 5-14 – - (7.5YR 3/2,), -
 ; ; ;
 ; ;
 AB – 14-20 – - (7.5YR 4/5,), -
 - ; ; ;
 ; ;
 2Bw – 20-70 – - (10YR 5/6, -
), - ; ;
 - ; ;
 - 2C – 70-100 – - (2.5Y 5/6,
), - ; ;
 ; ; ;
) , ; ;

. 40. Silti-Chromic Cambisol (Eutric) (

17

Othi-Dystric Cambisol,

		%	%	%			%,	N
								%
0	0-5	-	-	-	3,1	2,4	44,4	1,78
Ah	5-14	8	63	29	3,1	2,4	7,9	0,33
AB	14-20	11	77	12	3,4	2,7	5,3	0,24
2Bw	20-70	16	56	28	4,3	3,8	1,3	0,10
2C	70-100	25	51	24	4,2	3,7	0,2	0,08

17.

	(+)				H+Al, (+) /	, (+) /
	Ca	Mg	K	Na		
0	16.0	0.7	0.1	0.2	119	-
Ah	0,0	0,2	0,1	0,0	-	-
AB	0,1	0,1	0,1	0,0	35,4	36,4
2Bw	0,0	0,0	0,1	0,0	16,5	16,8
2C	0,08	0,0	0,1	0,0	8,4	9,0

6.1.5.

, -
 -
 ,
 . Eutric Cambisols -
 . Dystric Cambisols,
 ;
 . Vertic Calcaric Cambisols ()

. Eutric, Calcaric Chromic Cambisols

Dystric Ferralic Cambisols

Ferralsols,

Acrisols
Gleyic Cambisols

7.

6.

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7.1.

()

1)

2)

3)

(3000)

600

80 %

1.

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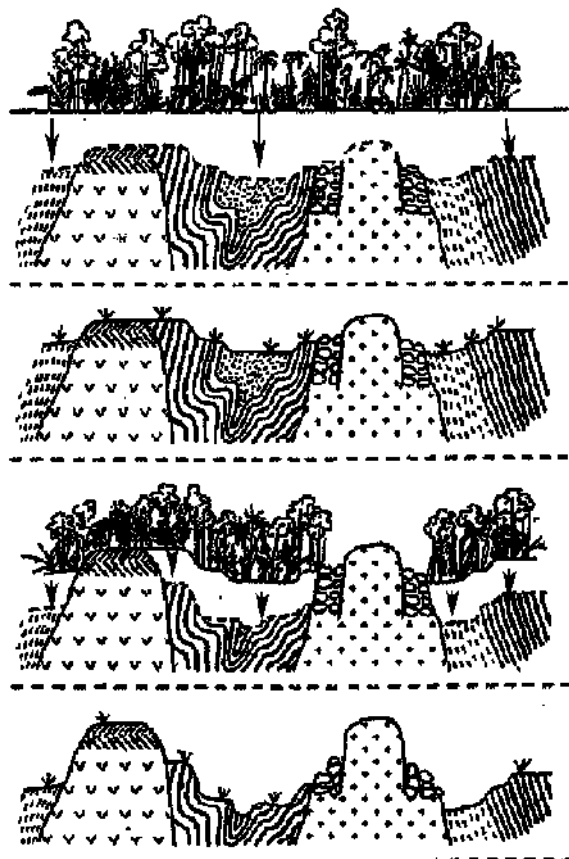
();



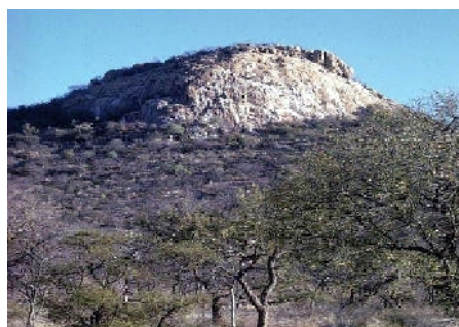
2. , , . (-) , . , - , - . (-) . , -) . - .

3. (, , ,) , . - .

4. , . : . , . () . , - , - . , - , - .



V-



. 41.

(Krnberg Melitz, 1983)

()

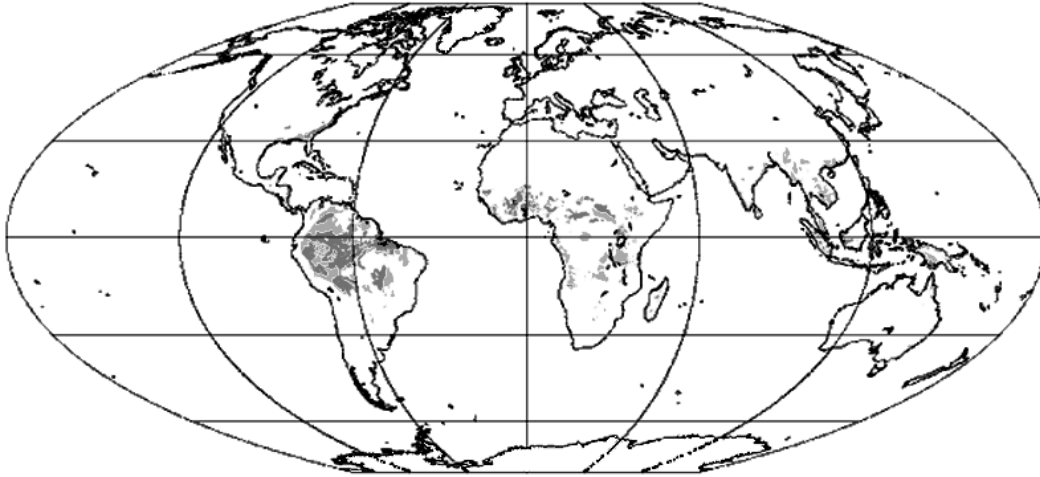
(3000 . .)

3000

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_____ :

7.2.2.



. 42.

Plinthosols

60

Ferralsols, Alisols, Acrisols Lixisols.

Gleysols.

gleyic stagnic

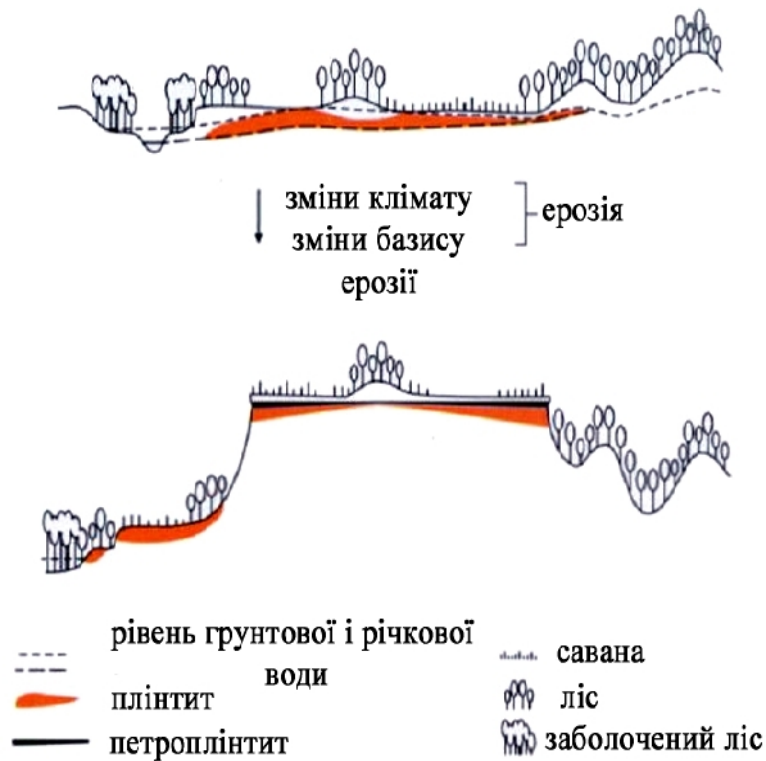
()

Plinthic

Petric Plinthosols / leptic

Leptsols

7.2.3.



(1807)

. 43.

- later

: 1-

2 -

()

/ , : 1) ,
 2) (F) (Fe₂ 3)
 (Al₂ 3·3H₂) (Al₂ 3·H₂).
 () ,
 : ,
 :

7.2.4.

(:)
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 ; ;
 ; ;
 ; ;
 ; ;

in situ



.44. Albi-Umbric Plinthosol, Albic Plinthosol
 F.A. Moormiann, E. Chijioke

(
 Ap – 0-20 – (10 YR 5/3,
) ;
 ;
 ;
)
 E – 20-38 – (10 YR 5/3,
) ;
 ;
 B – 38-61 – (7.5 YR 5/4,) ;
 ;
 ;
 ;
 Bt – 61-93 – (10 YR 5/3,) ;
 ;
 ;
 ;
 Bv – 93-180 – (10 YR 6/2,)
 ;
 (2.5 YR 3/6) (2.5 YR 3/6) ;
 ;
 ;
 ;

Albic Plinthosol,

		%	%	%			%	N
Ap	0-20	77	15	7	5,9	4,9	0,8	0,07

E	20-38	77	17	6	5,5	4,4	0,3	0,03
B	38-61	61	15	24	4,7	3,8	0,3	0,03
Bt	61-93	55	17	28	4,5	3,7	0,2	0,03
Bv	93-180	53	19	28	4,6	3,7	0,2	0,03

18

		(+) /	, %	Fe ₂ O ₃ , /
Ap	0-20	89	34	10
E	20-38	63	24	10
B	38-61	31	8	21
Bt	61-93	13	14	28
Bv	93-180	28	0	40

) Fe Al.

(Fe) (Fe₂ 3);
 (Al₂ 3·3H₂) / (Al₂ 3·H₂).

albic,
 umbric.
 gleyic stagnic

2.5–3.6 / ³

80
 %
 40 %
 End eutric.

7.2.5.

(80 %),
 (-
),
 ;
 /

7.3. (Ferralsols, FR)

7.3.1.

Ferralsols

(),
 Ferralsols Oxisols (), Lat sols
 (), Sols ferralitiques (),
 () Ferralsols ().

Ferralsols – :

- 1) ferralic 25 200 ;
- 2) nitic 100 ;
- 3) argic 10 % -
 30 ,
 geric 1,4 %

: Gibbsic, Geric, P sic, Histic, Gleyic, Andic, Plinthic, M llic, Acric, Lixic, Umbric, Arenic, End stagnic, Humic, Ferric, Vetic, Alumic, Hyperdystric, Hypereutric, Rh dic, Xanthic, Haplic.

 (. ferrum – aluminium –)
 _____ ; -
 _____ ; -

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ABC.

-

-

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p

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-

_____:

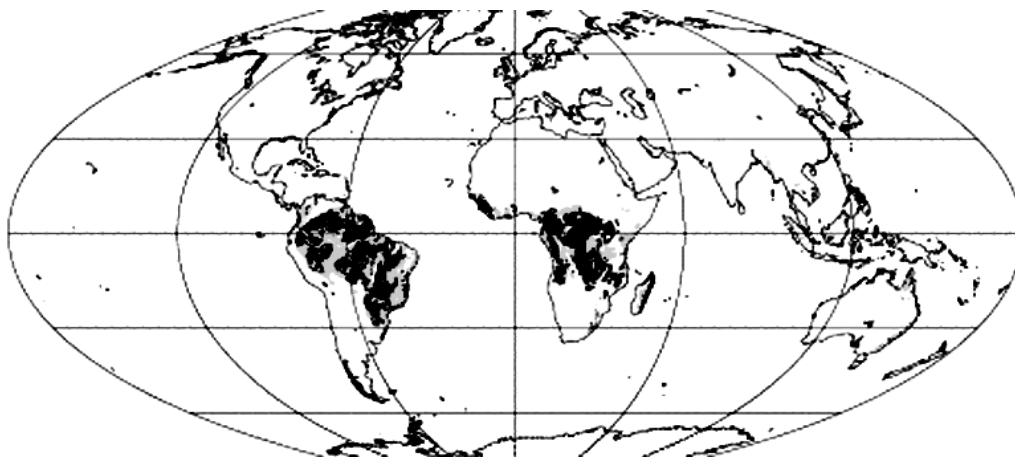
,

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-

7.3.2.



.45.

Ferralsols
750

() (,

-

-

).

-

Acrisols (-

)

Nitisols,

-

-

Ferralsols Acrisols.

,

-

,

.

7.3.3.

Si Al.

1) p

Al. $2(p)$

2) ;

3) ;

(Fe()₃) –

(,)

: (Fe- Fe),

				2:1

(Fe()₃) –

(,)

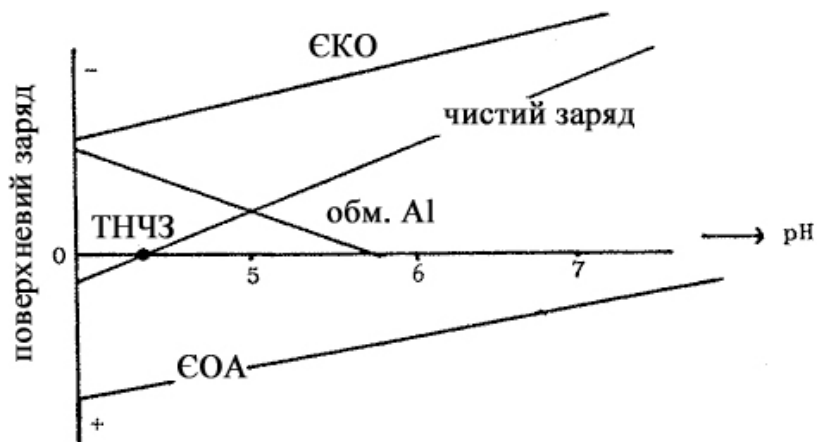
: (Fe- Fe),

ferralic
 (<10 %).
 Si^{4+} Al^{3+} Al^{3+} Mg^{2+}
 H^+
 pH (H^+)
 $(1\text{M NH}_4 \text{ Ac p } 7)$ 16 $(+)$ ferralic
 $< 7.$
 $(\text{Al}^{3+} + \text{H}^+).$ $(\text{Na}^+, \text{K}^+, \text{Ca}^{2+}, \text{Mg}^{2+})$
 (E)
 3 4 $(+)$ pH
 $()$
 pH $1\text{M KCl. p } (\text{KCl})$
 $\text{p } (\text{H}_2)$

() ;

T p , (-)

T . () . p (KCl) p (H₂) p .



.47. ' (H₂) , , ,

.47.

7.3.5.

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7.4. (Alisols, AL)

7.4.1.

Alisols

() , Al-

Alisols: (), Ultisols

Ferralsols sols fersiallitiques trus lessivus ().

Alisols –

1) argic (1 NH₄Ac p 7.0) 24
(+) 1 100
200 , -

2) alic 25 100 ;

3) chric, umbric,
albic, andic, ferric, nitic, plinthic vertic.

: Vertic, Gleyic, Andic, Plinthic, Nitic, Umbric,
Arenic, Stagnic, Abruptic, Humic, Albic, Pr f ndic, Lamellic, Ferric,
Skeletal, Hyperdystric, Rh dic, Chromic, Haplic.

:

_____:

aluminium – (). Al³⁺>50 % (.

_____:

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_____ () , -

_____ : ABt .

_____ : (-

Mg²⁺), -

,

,

.

Alisols ()

7.4.3.

argic.

Al³⁺

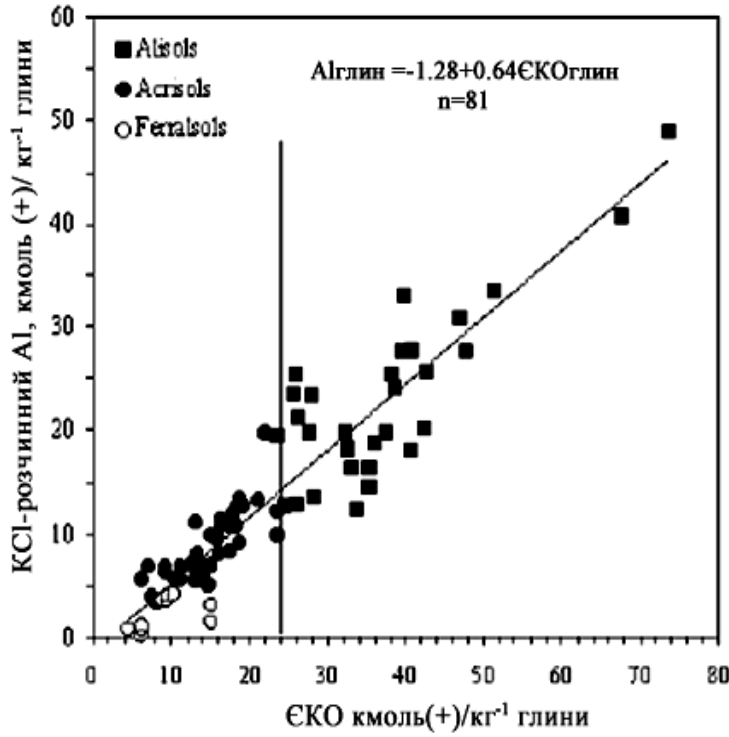
(p 5 6.5).

p

argic



R h d Alisols



(2:1). -

(KCl) . 49.

ferralic argic -

($pH_{KCl} < 4.0$) -

Ferralsols, Acrisols -

Alisols , -

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. 49.

KCl-

, Ferralsols, Acrisols () , -

Alisols

Al-

Ferralsols Acrisols Alisols.

p_{KCl}

Al,

T

;

() -

T

;

(12 (+)/ -

)

;

;

,

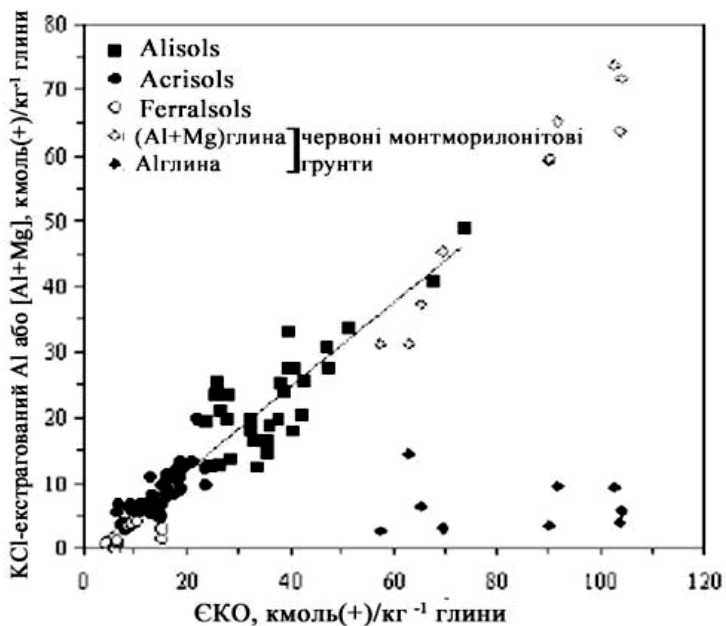
,

, :

Rh dic Alisols (-

); Al-
 (Al-)
 Al-
 (2:1)
 1:1
 1:1:1:1
 . 50 -
 . 49 -

Haplic Alisols () Rh dic Alisols

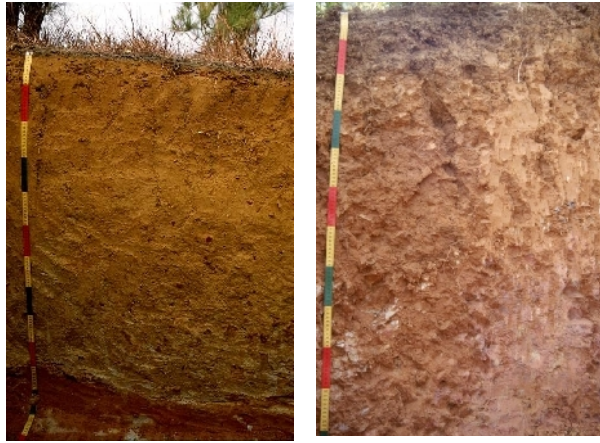


Al / Mg] [KCl- Al +
 р KCl < 4.0

Mg. () -
 ()
 10R. : 12 (+) KCl- 2.5 YR 1
 , 55 (+)/1 .
 (Al+Mg) Al Mg,
 , Mg - ;
 Eutric. Alic

7.4.4.

chric,
 umbric
 argic,



Hyperdistri-Gleyic Alisol
J.P.Andriessse

ochric
argic.
Ah – 0-10 – (10 YR 6/4,),
; ;
; ;
– 10-35 – (7,5 YR 6/6,),
; ;
– Chromi-Hyperdystric Alisol (;
(7,5 YR 6/8,),
; ;
BCg – 64-104 – (5 YR 6/8,),
; ;
Cg – 104-117 – ; ;

.51.

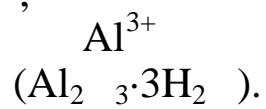
- Hyperdystri -Stagnic Alisol (;
- Chromi-Hyperdystric Alisol (;

Hyperdistri-Gleyic Alisol,

		%	%	%	(1 – , 8 –)			
Ah	0-10	19	33	49	6	6	4	2
	10-35	16	29	56	6	6	4	2
Bt	35-64	24	22	54	6	6	2	3
BCg	64-104	8	26	66	6	7	2	2
Cg	104-117	7	37	57	6	6	2	2

21

		%	N %	(+)/					Al, (+)/	, (+)/	
				Ca	Mg	K	Na				
Ah	4,8	3,6	3,8	0,27	0,8	0,7	0,4	0,1	2,0	3,6	30,0
	4,8	3,8	0,9	0,08	0,3	0,2	0,2	0,1	0,8	12,4	24,1
Bt	4,9	3,8	0,5	0,07	0,3	0,2	0,2	0,1	0,8	12,2	22,3
BCg	5,0	3,8	0,4	0,08	0,5	0,0	0,2	0,0	0,7	19,8	26,4
Cg	4,8	3,7	0,3	0,07	0,5	0,2	0,3	0,1	1,1	20,2	30,1



vertic

50 (+)/1

: Al^{Al-} Mn

Ca K. p

P,



_____:

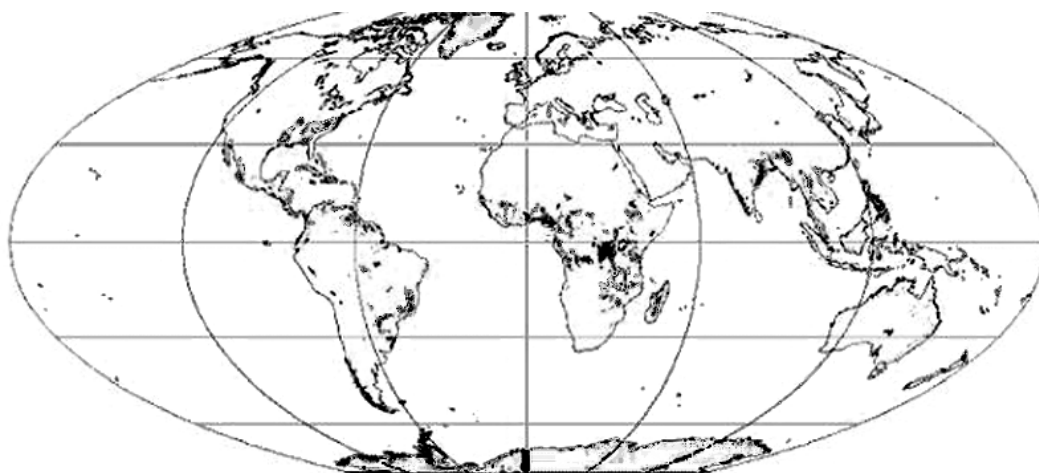
Nitisols / () . Nitisols

_____:

_____ : AB(t)C-nitic

_____:

7.5.2.



.52.

200

Nitisols Nitisols.

Nitisols

Nitisols

(.53):

1)

vertic

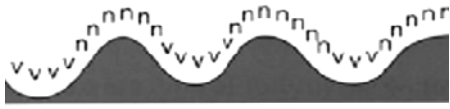
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2)

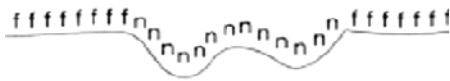
a) Fe-Mg збагачені породи



b) пірокластичні породи



c) базальт



d) вапняк



n = Nitrisol
 v = Vertisol
 a = Andosol
 f = Ferralsol
 l = Luvisol
 c = Cambisol

7.5.3. Nitrisols

nitic.

3.

(100

7.5.4.

150

nitic.

nitic

3)

4)

Chromic

Luvisols.

7.5.3.

1.

2.

(20

150).
nitic

ferralic argic.
cambic

vertic ferric

5-10



Dystri-Rhodic Nitisol

Rachillo

Michieka

7

chric nitic.

Ah -0-18 -

(5YR 3/3,
(5YR 3/4, -

**. 54. Rhodic
Nitisol (**

AB - 18-37 -
3/4,),
3/4,),

(2,5 YR
(2,5 YR

Bt1 - 37-66 -

(2,5 YR 3/6,),

(2,5 YR 3/4,),

Bt2 - 66-116 -

(2,5 YR 3/6,),

(2,5 YR 3/4,),

Bt3 - 116-180 -

(2,5 YR 3/6,),

(2,5 YR 3/4,),

5.0.

(-



140

4.0 %

)

p 3).

0.2 %

(Fe₂ O₃)

(

- 0.05

()

22

Dystri-Rhodic Nitisol,

			%	%			%	N %	(+) /	%
Ah	0-18	6	24	70	5,8	4,9	2,3	0,18	25,7	46
AB	18-37	6	19	75	5,4	4,3	2,1	0,16	24,8	33
Bt1	37-66	4	14	82	5,4	4,5	1,0	0,09	22,7	40
Bt2	66-116	4	13	84	5,9	5,0	0,8	-	23,7	43
Bt3	116-180	4	11	85	6,3	5,3	0,7	-	18,5	55

(50-

60 %

).

(5-15 %

24

2

()

T

(> 30 %

> 60 %);

T

m llic umbric

<10

>90 %, H₂

-

5.0

6.5;

P

7

7.5.5.

argic, Podzolicos, Ferralitiques, Ultisols, Alfisols, Umbrisols, Gleysols, Vitrisols, Andisols, Plinthisols, Umbrisols, Arenisols, Stagnisols, Abruptisols, Gericisols, Humisols, Albisols, Prufundisols, Lamellisols, Ferrisols, Hyperchrisols, Skeletisols, Veticisols, Alumisols, Hyperdystrisols, Rhodisols, Chromisols, Haplisols.

7.6. (Acrisols, AC)

7.6.1.

Acrisols

argic Acrisols, Podzolicos vermelho-amarello distroficicos a argila de atividade baixa, Sols ferralitiques fortement ou moyennement dusaturus, Alfisols, Ultisols.

Acrisols -

1) argic (1 NH₄Ac p 7.0) 24
(+)/1 100 200

2) ; 50 % (1M NH₄Ac p 7.0) 25 100

: Leptic, Gleyic, Vitric, Andic, Plinthic, Umbric, Arenic, Stagnic, Abruptic, Geric, Humic, Albic, Pr f ndic, Lamellic, Ferric, Hyper chric, Skeletic, Vetic, Alumic, Hyperdystric, Rh dic, Chromic, Haplic.

_____ :
(. acris -)
_____ :

_____:

_____: AEBtC- (Acrisols ,).

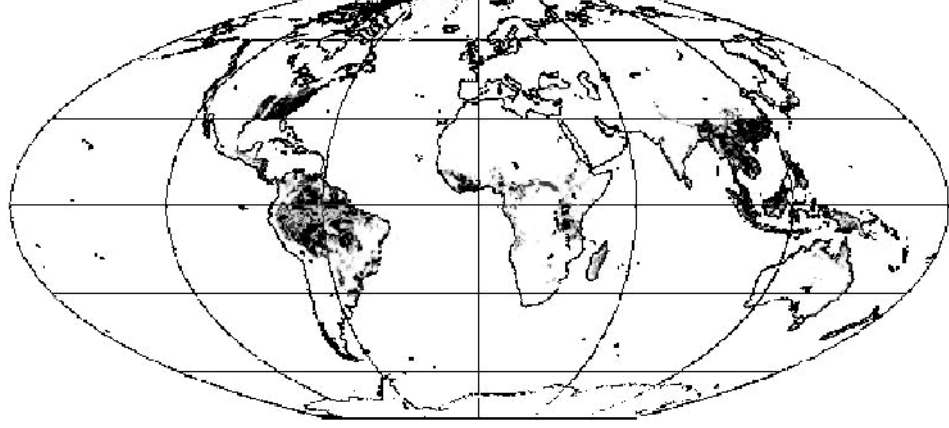
E- Bt- argic

_____:

(, , ,)

7.6.2.

1 Acrisols.



.55.

Acrisols

Acrisols

Acrisols

7.6.3.

B- argic,

argic -

).

(. P dz ls),

(h)-

Bst-

(, -).

7.6.4.

chric,

;

albic

;

argic.

. Gleyic

/

Plinthic Acrisol

A.J. Kekem - '



. 56. Profondi-Vetic Acrisol (Hyperdystric)

Ah – 0-8 – (10 YR 5/4,) ; - -

B1 – 8-30 – (10 YR 5/6,), 4.6; ; ; ;

B2 – 30-50 – (10 YR 5/8,); - -

B3 – 50-80 – (10 YR 5/8,) ; - -

C – 80-110 – (10 YR 5/8,), 4.6; ; ; ;

Fe-, Al- Ti-
Si₂/Al₂ 3 2.

23

Plinthic Acrisol,

		%	%	%	%	%	N %	Al, (+) /	(+) /	%	
Ah	0-8	77	13	11	4,3	3,8	0,9	0,07	22	22	30
B1	8-30	61	16	23	4.4	3.8	0.7	0.06	1.2	13	7
B2	30-50	51	17	32	4.4	3.8	0.5	0.04	1.6	10	3
B3	50-80	46	18	36	4.5	3.8	0.5	0.02	1.6	8	4
C	80-110	40	22	38	4.7	4.0	0.4	-	1.4	8	3

— ().

; albic , .

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· , P-

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7.6.5.

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7.7. (Lixisols, LX)

7.7.1.

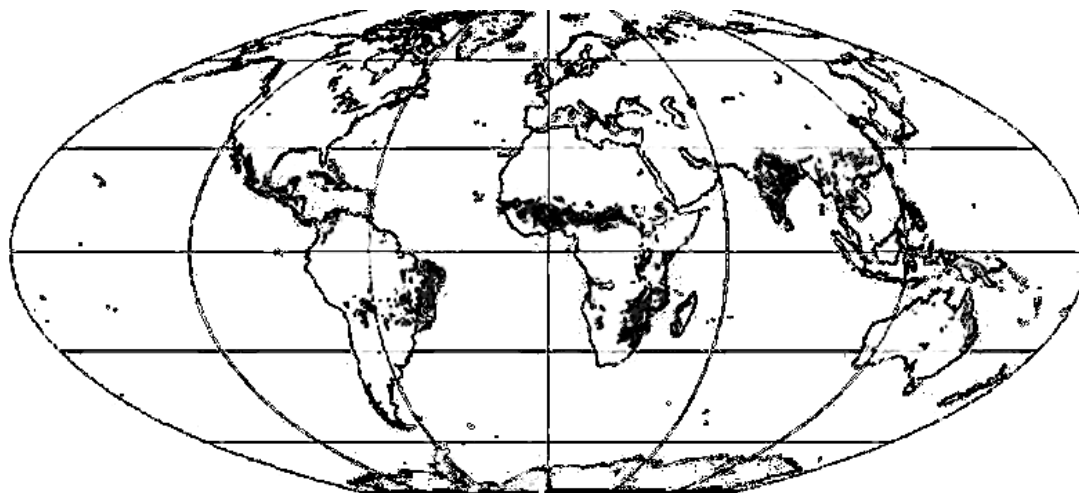
Lixisols

argic, . Lixisols
 ()
), Podzolicos vermelho-amarelo eutroficos a argila de
 atividade baixa (), Sols ferralitiques faiblement dusaturus
 appauvris (), Latosols
 xic Alfis ls (,).
Lixisols – , argic,
 100 , 200 ,

: Leptic, Gleyic, Vitric, Andic, Plinthic, Calcic,
 Arenic, Geric, Stagnic, Abruptic, Humic, Albic, Pr f ndic, Lamellic,
 Ferric, Hyper chric, Vetic , Rh dic, Chromic, Haplic.

 (. lixivia –).
 _____:
 _____:
 _____ Lixisols
 _____: ABtC-
 , argic
 _____: Lixisols
 - ;
 /

7.7.2.



.57.

Lixisols

435

argic -

Lixisols,

Lixisols

7.7.3.

Lixisols

argic) –

7.7.4.



.58. Chromic Lixisol (

ochric argic
 argic,
 argic
 E-
 chric
 Bt-

Chromi-Profondic Lixisol

Ap – 0-20 – (5 YR 4/6,)
 ;
 AB – 20-36 – (5 YR 4/4,)
 ;
 Boc1 – 36-68 – (5 YR 4/6,)
 ;
 Boc2 – 68-150 – (5 YR 4/6,)

1:1 (), -
 Fe-, Al- Ti-
 . Si₂/Al₂ 3 2;

24

Chromi-Profondic Lixisol,

		%	%			%	N %	
Ap	0-20	71	8	21	6,9	6,0	0,24	0,03
AB	20-36	70	8	22	6,7	5,8	0,24	0,03
Boc1	36-68	63	7	30	6,2	5,3	0,27	0,02
Boc2	68-150	48	8	44	6,0	5,1	0,21	0,03

24

	(+) /				(+) /	%
	Ca	Mg	K	Na		
Ap	3,3	0,2	0,4	0,3	4,1	100
AB	1,8	0,0	0,3	0,0	3,9	54
Boc1	2,3	0,2	0,3	0,1	5,7	51
Boc2	4,2	2,0	0,3	0,1	7,6	87

Stagnic argic
 Gleyic
 Al-
 2 (+)/1
 7.7.5.

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2. World Reference Base for Soil Resources: Atlas, 1998.
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	(Anthrosols,)	30
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4.1.		36
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	150

/WRB

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