

581.1

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01001 , . , 2,

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(- , -
,), 92 :
Cyanoprokaryota – 49, *Chlorophyta* – 28, *Bacillariophyta* – 12, *Xanthophyta* – 2, *Eustigmatophyta* – 1.

(70).

14 , 7
, 5 2 .

1982). (...)

(...)

57,4 ... 49 ... - 8469 ...

260 ...

(..., 1999).

100 (Algae ..., 2006). (... , 1915, 1916, 1922; Wislouch, 1924; ... , 1940; ... , 1959, 1960; ... , 1960; ... , 1992) (... , 1928; ... , 1970; ... , 2002).

(... , 1959 , , 1962; 1969 - , 1971 , , 1974, 1992; ... , 1988; ...).

(1995) . (Yarovoi et al., 2005, 2007).

2006 . - ().

30 , -

:

- ,

(9);

- -

(- Salicornieta -

Suaedeta) (- Halocnemeta

strobilacei - Halimioneta verruciferae)

(11);

- (

- Puccinellieta - Aeluropeta litoralis)

(6);

- ,

(Steppa salsuginosa) (4).

,

.

. 49 (20 , 27

2).

1 %-

(7,8).

12:12.

5 .

(1,5 %) (Ettl, Gärtner, 1995).

-3 2 . 2 ()

(, 1968; Ettl,

1978; omárek, Fott, 1983; ., 1984; Ettl, Gärtner, 1995; omárek,

nagnosdidis, 1998; omárek, nagnosdidis, 2005),

(omárek, nagnosdidis,

1989, 1998, 2005).

«Syllabus ...» (Ettl, Gärtner, 1995).

,

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92 , 5 :

Cyanoprokaryota – 49, *Chlorophyta* – 28, *Bacillariophyta* – 12, *Xanthophyta* – 2, *Eustigmatophyta* – 1 (. 1).

(49),

79,6 %

, . . . 100 %

66,6 %

(*Chroococcales* –

22,4 %; *Oscillatoriales* – 51,1 %; *Nostocales* – 26,5 %),

19

Cyanoprokaryota.

Pseudoanabaenaceae (28,6 %) *Nostocaceae* (16,3 %),

Leptolyngbya Anagn. & Komárek

(8 , 16,3 %),

Calothrix Agardh ex Bornet et Flahault – 5 ,

4

Synechocystis Sauv., *Phormidium* Kütz. ex Gomont, *Lyngbya*

Agardh ex Gomont.

(2,7),

Jaaginema Anagn. & Komárek, *Anabaena* Bory ex Bornet et

Flahault *Nostoc* Vaucher ex Bornet et Flahault.

(*F*)

, 42,9 %

Leptolyngbya fragilis

(*F* = 45,4 %), *Leptolyngbya tenuis* (*F* = 30,4 %) *Nostoc linckia* (*F* = 30,0).

76,7 %

28

22

Chlorophyceae

Trebouxiophyceae, 82,3 %

(16,7 %).

Bacillariophyceae,

(*Achnantales* – 16,7 %;

Naviculales – 66,7 %; *Bacillariales* – 16,65 %),

8

(2)

(1)

1,3,

(53,5 %)

Luticola D.G. Mann,

Navicula Bory, *Chlamydomonas* Ehrenb. (3),

Bracteacoccus

Tereg., *Chlorosarcinopsis* Herndon *Elliptochloris* Tschermak-Woess (2)

Mychonastes homosphaera (46,5 %), *Dilabifilum*

arthopyreniae (32,6 %) *Hantzschia amphioxys* (27,9 %). 48,8 %

1
42,5 %

- 11 12

1.

()

	1	2	3	4				
1	2	3	4	5	6	7	8	9
CYANOPROKARYOTA								
<i>Anabaena caspica</i> Ostenf.	-	+	-	-	+	-	-	
<i>A. propinqua</i> Setch. et N.L. Gardner	-	+	+	-	+	+	-	
<i>A. variabilis</i> Kütz.	-	+	+	+	+	+	-	
<i>Aphanocapsa muscicola</i> (Menegh.) Wille	+	+	+	-	+	+	+	
<i>Aph. salina</i> Woron.	-	+	+	+	+	+	-	
<i>Aphanothece nidulans</i> Richter	-	+	-	-	-	+	-	
<i>Aph. saxicola</i> Nägeli	-	+	-	-	+	+	-	
<i>Calothrix aeruginosa</i> Woron.	-	+	-	-	+	-	-	
<i>C. braunii</i> Bornet et Flahault	-	+	-	-	-	+	-	
<i>C. fusca</i> (Kütz.) Bornet et Flahault	-	-	+	-	-	+	-	
<i>C. elenkinii</i> Kossinsk.	-	-	+	-	+	+	-	
<i>C. parietina</i> (Nägeli) Thur.	-	+	-	-	+	+	-	
<i>Chroococcus submarinus</i> (Hansg.) Kováčik	-	+	-	-	+	+	-	
<i>Cyanobium bacillare</i> (Butcher) Komárek et al.	-	+	-	-	+	+	+	
<i>Geitlerinema attenuatum</i> (Woron.) Anagn.	-	+	-	-	-	+	-	
<i>Jaaginema borodini</i> (Woron.) Anagn. et Komárek	-	+	-	-	+	-	-	
<i>J. crassum</i> (Woron.) Anagn.	-	+	-	-	-	+	-	
<i>J. neglectum</i> (Lemmerm.) Anagn. et Komárek	-	+	-	-	-	+	-	
<i>Leibleinia epiphytica</i> (Hieron.) Compère	-	+	-	-	+	-	-	
<i>L. nordgaardii</i> (Wille) Anagn. et Komárek	-	+	-	-	+	-	-	
<i>Leptolyngbya bohneri</i> Schmidle	+	-	-	-	-	+	-	
<i>L. foveolarum</i> (Rabenh. ex Gomont) Anagn. et Komárek	+	+	-	-	+	+	-	
<i>L. fragilis</i> (Gomont) Anagn. et Komárek	+	+	+	-	+	+	-	
<i>L. halophila</i> (Hansg. ex Gomont) Anagn. et Komárek	+	+	+	-	+	+	-	
<i>L. heningssii</i> (Lemmerm.) Anagn. et Komárek	-	+	+	+	+	-	-	

1	2	3	4	5	6	7	8	9
<i>L. saxicola</i> (N.L. Gardner) Anagn.	-	+	-	-	+	-	-	
<i>L. subcapitata</i> (J.B. Petersen) Anagn.	-	-	+	-	-	+	-	
<i>L. tenuis</i> (Gomont) Anagn. et Komárek	-	+	+	-	+	+	+	
<i>Lyngbya aestuarii</i> Liebm. ex Gomont	+	+	+	-	+	+	-	
<i>L. major</i> Menegh. ex Gomont	-	+	-	-	-	+	-	
<i>L. majuscula</i> Harvey ex Gomont	-	+	-	-	+	+	-	
<i>L. salina</i> Kütz. ex Starmach	-	+	-	-	-	+	-	
<i>Microcoleus chthonoplastes</i> (Fl. Dan.) Thur.	+	+	+	-	+	+	-	
<i>Nodularia harveyana</i> (Thwait) Thur.	-	+	+	+	+	-	-	
<i>N. spumigena</i> Mert.	-	+	+	-	+	+	-	
<i>Nostoc edaphicum</i> N. Kondrat.	-	-	-	+	+	-	-	
<i>N. linckia</i> (Roth) Bornet et Flahault	-	+	+	+	+	+	-	
<i>N. punctiforme</i> (Kütz.) Hariot	-	+	+	-	+	+	-	
<i>Oscillatoria subbrevis</i> Schmidle	+	-	+	-	+	+	-	
<i>Phormidium autumnale</i> (C. Agardh) Gomont	-	+	+	+	+	+	+	
<i>Ph. molle</i> Gomont	-	+	-	-	+	-	-	
<i>Ph. papyraceum</i> (C. Agardh) Gomont	-	+	-	-	+	-	-	
<i>Ph. paulsenianum</i> J.B. Petersen	+	+	+	-	+	+	-	
<i>Porphyrosiphon luteus</i> Gomont ex Gomont	+	+	+	-	+	+	-	
<i>Synechococcus salinarum</i> Komárek	-	+	-	-	+	-	-	
<i>Synechocystis aquatilis</i> Sauvageau	+	-	-	-	-	+	-	
<i>S. crassa</i> Woron.	+	+	-	-	-	+	-	
<i>S. minuscula</i> Woron.	+	+	+	-	+	+	-	
<i>S. salina</i> Wislouch	-	-	+	-	+	-	+	
BACILLARIOPHYTA							-	
<i>Achnanthes brevipes</i> Agardh	-	-	+	-	+	+	-	
<i>Cocconeis placentula</i> Ehrenb.	-	+	-	-	-	+	+	
<i>Hantzschia amphioxys</i> (Ehrenb.) Grunow	+	+	+	+	+	+	-	
<i>Luticola cohnii</i> (Hilse) Mann	-	-	+	-	+	-	+	
<i>L. mutica</i> (Kütz.) Mann	-	+	+	-	+	+	-	
<i>L. nivalis</i> Mann	-	-	+	-	+	-	-	
<i>Navicula pelliculosa</i> (Bréb.) Hilse	-	+	+	-	+	+	-	
<i>N. cryptocephala</i> Kütz.	-	+	-	-	-	+	-	
<i>N. tripunctata</i> (O.F. Müller) Bory	-	+	-	-	-	+	-	
<i>Nitzschia</i> sp.	-	+	-	-	-	+	-	
<i>Pinnularia borealis</i> Ehrenb.	-	-	+	+	+	-	-	
<i>Stauroneis anceps</i> Ehrenb.	-	+	-		-	+		
XANTHOPHYTA								
<i>Capitulariella radians</i> Pascher	-	+	-	-	-	+	-	
<i>Gloeobotrys</i> sp.	-	+	+	+	+	+	+	
EUSTIGMATHOPHYTA								
<i>Eustigmatos magnus</i> (J.B. Petersen) Hibberd	-	+	-	+	+	+	-	

. 1

1	2	3	4	5	6	7	8	9
CHLOROPHYTA								
<i>Borodinellopsis oleifera</i> Schwartz	-	+	-	-	-	+	-	
<i>Bracteacoccus giganteus</i> Bishoff et Bold	-	+	-	-	+	+	-	
<i>B. minor</i> (Chodat) Petrova	-	-	+	-	+	-	-	
<i>Chlamydomonas</i> cf. <i>actinochloris</i>	-	-	-	+	+	-	-	
<i>Chlamydomonas</i> sp.	+	+	-	-	+	+	+	
<i>Chlamydomonas</i> sp.+	-	+	-	-	-	+	-	
<i>Chlorella ellipsoidea</i> Gerneck	-	-	+	-	+	-	-	
<i>Ch. vulgaris</i> Beijer.	+	-	+	-	+	+	-	
<i>Chlorococcum</i> sp.	-	+	+	-	+	+	-	
<i>Chlorosarcinopsis arenicola</i> Groover et Bold	-	+	+	+	+	+	-	
<i>Ch. dissociata</i> Herndon	+	+	+	-	+	+	-	
<i>Choricystis minor</i> (Skuja) Fott	-	-	-	+	+	-	-	
<i>Dilabifilum arthopyreniae</i> (Vischer et Klement) Tschermak-Woess	+	+	+	-	+	+	-	
<i>Diplosphaera chodatii</i> Bialosuknia emend. Vischer	-	+	-	-	-	+	-	
<i>Elliptochloris bilobata</i> Tschermak-Woess	-	-	-	-	-	-	+	
<i>E. subsphaerica</i> (Reisigl) Ettl et Gärtner	+	-	-	-	-	+	-	
<i>Klebsormidium flaccidum</i> (Kütz.) Silva et al.	-	+	+	+	+	+	+	
<i>Leptosira erumpens</i> (Deason et Bold) Lukešova	-	-	-	+	+	-	-	
<i>Muriella terrestris</i> J.B. Petersen	-	+	-	+	+	+	-	
<i>Mychonastes homosphaera</i> (Skuja) Kalina et Pun .	+	+	+	+	+	+	+	
<i>Myrmecia incisa</i> Reisgl	-	+	-	-	+	+	-	
<i>Neochlorosarcina minuta</i> Groover et Bold	-	+	-	-	-	+	-	
<i>Radiosphaera negevensis</i> Ocampo-Paus et Friedmann	+	-	-	-	-	+	-	
<i>Pseudendoclonium printzii</i> (Vischer) Bourrelly	+	+	-	-	-	+	+	
<i>Pseudococcomyxa pringsheimii</i> (Jaag) Kostikov et al.	-	+	-	-	-	+	-	
<i>Spongiochloris gigantea</i> Bishoff et Bold	-	+	-	-	-	+	-	
<i>Stichococcus bacillaris</i> Nägeli	-	-	+	-	+	+	-	
<i>Tetracystis aggregata</i> Brown et Bold	-	+	-	-	-	+	-	
	22	70	41	18	63	70	13	92
: 1 – , 2 – , 3 – - , 4 – ; - , - , - .								

Bacillariophyta
Hantzschia amphioxys, *Luticola mutica*, *L. cohnii*, *Pinnularia borealis* 500-1000 Cl/ (Johansen, 2001).
 (34,5 %).
 61,3 %
 67,9 % *Chlorophyta*.

21,8 %, (. 2).
 2.

	(.%)				
				*	
<i>Cyanoprokaryota</i>	20/40.8	10/20.4	19/21.8	-	49
<i>Bacillariophyta</i>	11/91.6	-	-	1/8.3	12
<i>Xanthophyta</i>	-	1	-	1	2
<i>Eustigmatophyta</i>	-	1/100	-	-	1
<i>Chlorophyta</i>	6/21.4	19/67.8	-	3/10.7	28
	37	31	19	4	92
* , .					

(. 1).

70 k , 5
 : *Cyanophyta* – 41, *Chlorophyta* – 18, *Bacillariophyta* – 8, *Xanthophyta* – 2, *Eustigmatophyta* – 1.

57

5

:

Cyanophyta – 28, Chlorophyta – 18, Bacillariophyta – 8, Xanthophyta – 2,
Eustigmatophyta – 1. 1 21

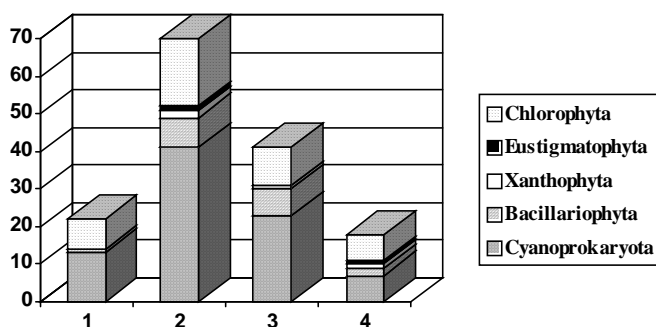
8,6.

Leptolyngbya fragilis, 61,5 %

Leptolyngbya tenuis, *Lyngbya aestuarii*, *Navicula pelliculosa*, *Hantzschia amphioxys*,
Dilabifilum arthopyreniae, *Mychonastes homosphaera*

(38,5 %).

Cyanobium bacillare, *Chroococcus submarinus*, *Neochlorosarcina minuta*,
Pseudendoconium printzii, *Dilabifilum arthopyreniae*, *Chlorosarcinopsis arenicola*,
Capitulariella radians.



. 1.

: 1 - ; 2 -
; 3 - ; 4 -

41

– Cyanoprokaryota – 32, Chlorophyta – 6, Bacillariophyta – 2.
3 13 7,1

Leptolyngbya fragilis *L. tenuis*,
72,3 54,5 %

Phormidium paulsenianum (45,5 %) *Microcoleus chthonoplastes* (36,4 %).

(27,3 %) 2 : *Dilabifilum arthopyreniae* *Mychonastes homosphaera*.

41

: Cyanoprokaryota – 23, Chlorophyta – 10, Bacillariophyta – 7,
Xanthophyta – 1. (36)

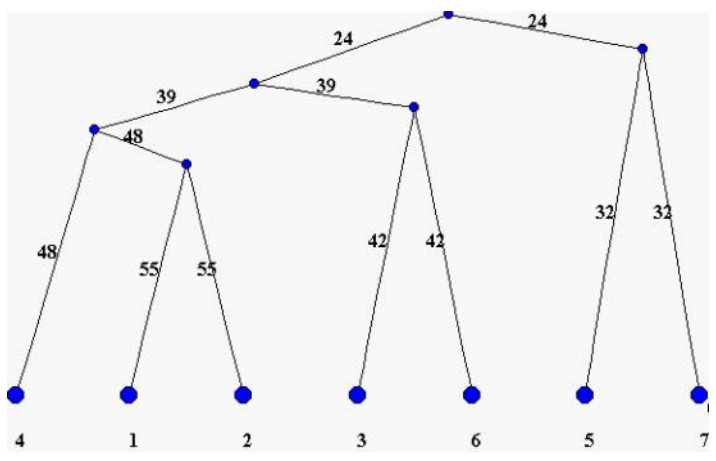
3 17

9,7

– *Nostoc linckia* (100 %),
Phormidium paulsenianum, *Leptolyngbya fragilis* (*F* = 66,7 %), *Nodularia*

harveyana *Dilabifilum arthopyreniae* ($F = 50\%$).
Chlorosarcinopsis arenicola .
 -
 18
 (Cyanoprokaryota – 13, Chlorophyta – 3, Bacillariophyta – 2).
 7,0. ,
 – *Leptolyngbya fragilis*, *Phormidium paulsenianum*
Nostoc linckia ($F = 66,7\%$). -
 , -
 , 22
 (Cyanoprokaryota – 13; Chlorophyta – 8, Bacillariophyta – 1).
 0 9 3,5.
Oscillatoria subbrevis, *Radiosphaera negevensis*,
Pseudendoclonium printzii, *Dilabifilum arthopyreniae*.
 , 16 22
 .
Mychonastes homosphaera (77,8%).
 , - , (=
 80-90 %).
 18
 5 – Cyanoprokaryota – 7, Chlorophyta – 7, Bacillariophyta – 2,
Xanthophyta – 1, *Eustigmatophyta* – 1.
 6 15, 9,1.
 – *Hantzschia amphioxys*, *Pinnularia borealis*, *Mychonastes*
homosphaera ($F = 100\%$), *Leptolyngbya heningsii*, *Phormidium*
autumnale, *Klebsormidium flaccidum*, *Muriella terrestris* ($F = 66,7\%$)
Chlorosarcinopsis arenicola.
Leptosira erumpens, *Gloeobotrys* sp., *Chlamydomonas* cf. *actinochloris*. -
 (,).
 13 (Cyanoprokaryota – 5,
Chlorophyta – 5, *Bacillariophyta* – 2, *Xanthophyta* – 1). , *Elliptochloris*
bilobata, (. .1).
 ,
 - (.2).
 3 (55 %)

(- 48 %; 1). (72 %).



. 2. (%)
 - (I -
 ; 2 - ; 3 -
 - ; 4 - -
 ; 5 - ; 6 -
 ; 7 -)

(- 42 %).
 (39 %),
 (44,5 %). , ,
 (. . 2),
 ,
 (24 %)
 ,
 ()
 ,
 « »,

(38,8 %),
(Golubich, 1980),

(, 2006).

Cyanobium bacillare,
Synechococcus salinarum, *Chroococcus submarinus*, *Leptolyngbya saxicola*, *Oscillatoria subbrevis*, *Anabaena caspica* (Cyanoprokaryota), *Radiosphaera negevensis* var. *minor*, *Chlorosarcinopsis arenicola* (Chlorophyta), *Capitulariella radians* (Xanthophyta).

(, 2008).

(*Leptosira erumpens*, *Dilabifilum arthopyreniae*, *Pseudendoclonium printzii*)

92 5 : Cyanoprokaryota – 49, Chlorophyta – 28, Bacillariophyta – 12, Xanthophyta – 2, Eustigmatophyta – 1.

76,7 %

Chlorophyceae *Trebouxiophyceae*.

Mychonastes homosphaera (46,5 %), *Dilabifilum arthopyreniae* (32,6 %) *Hantzschia amphioxys* (27,9 %)

O.N. Vinogradova, T. Darienko

N.G. Kholodny Institute of Botany, National Academy of Sciences of Ukraine,
2, Tereschenkivska St., 01001 Kiev, Ukraine

ALGAE OF AZOVO-SYVASHSKI NATIONAL NATURE PARK (UKRAINE)

Paper deals with the first results of study of algae in habitats with various levels of soil salinity and types of vegetation (true-solonchak, meadow-halophilous, saline steppes), or free of vascular plants. Totally 92 species of prokaryotic and eukaryotic algae were revealed: *Cyanoprokaryota* – 49, *Chlorophyta* – 28, *Bacillariophyta* – 12, *Xanthophyta* – 2, *Eustigmatophyta* – 1. Cyanoprokaryotes is the leading group in studied habitats in species richness, frequency and abundance. The most rich and diverse algal flora was revealed on sites of wet gleyic solonchaks with herbaceous and subshrub halophilous vegetation (70 species). It was shown that in terrestrial habitats the share of eukaryotic algae and average number of species in the sample rise with the increase of herbage density. 14 taxa are new or noteworthy records for Ukraine. They include 7 species of cyanoprokaryotes, 5 of chlorophytes and 2 species of xanthophytes. Representatives of Xanthophyta were recorded in saline soils of Ukraine for the first time.

Keywords: algae, hypersaline ecosystems, gradient of soil salinity, ecology of algae, Azovo-Syvashski National Nature Park, Ukraine.

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// . . .

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