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PLANKTON ALGÆ OF WHITE RIVER IN MARION COUNTY AND MORGAN COUNTY, INDIANA

By C. MERVIN PALMER

During a period of thirteen months in 1930 and 1931, the algæ from 176 samples of White river water were identified. The samples were obtained from three locations near the Indianapolis Sewage Disposal Plant in Marion county and at one location in Waverly in Morgan county. Mr. C. K. Calvert, of Indianapolis, was instrumental in making possible the collection of all of this material.

It is planned to consider in a later paper the effect of sewage on the kinds of algæ present, and the periodicity of the plankton algæ at the four locations.

A list of the algæ identified by the writer is included in this article. Forms which have not been reported previously for Indiana are in bold-face type. When the identification has been uncertain, a question mark is placed after the name of the alga. The number after each name indicates the number of samples out of the 196 samples examined in which each alga was found. The presence of each alga in samples from Marion county and from Morgan county is indicated by the "x's" in the columns at the right of the list. In some cases, especially with diatoms, specimens were identified to genus only. When more than one species of a genus has been identified, the information is also summarized for the genus. Not including this last group of genus names, there are 182 kinds of algæ given in the list. This would be the minimum number of species represented in the list. It includes 120 species which are new for Indiana. In the list are eighty-four genera, of which twenty-six are new for the State.

PLANKTON ALGÆ OF WHITE RIVER

	Number of Samples Containing Alga	Marion County	Morgan County
1 Actinastrum	36	x	x
2 A. gracillimum Smith	34	x	x
3 Anabæna	4	x	
4 Ankistrodesmus falcatus (Corda) Ralfs.	67	x	x
5 Asterionella	9	x	x
6 Brachiomonas	1		x
7 Chætophora	1	x	
8 Characium limneticum Lemm. ?	4	x	
9 Chlamydotrys gracilis Korschikoff.	2	x	
10 Chlamydomonas	104	x	x
11 C. communis Snow	9	x	x
12 C. globosa Snow	4	x	x
13 C. gracilis Snow	2		x
14 C. nivalis (Bauer) Wille	1	x	
15 Chlorella	23	x	x
16 C. vulgaris Beyerinck	6	x	x
17 Chroöcoccus	6	x	x
18 C. limneticus Lemm.	2	x	x
19 C. minutus (Ktz.) Näg.	3	x	
20 Chrysosphæra	1	x	
21 Cladophora	2	x	x
22 Closteriopsis longissima West	15	x	x
23 Closterium	44	x	x
24 C. acutum (Lyng.) DeBreb.	1	x	
25 C. gracile DeBreb.	29	x	x
26 C. moniliferum (Bory) Ehr.	1		x
27 Cocconeis	9	x	x
28 Cœlastrum	54	x	x
29 C. cambricum Arch.	3	x	
30 C. microporum Näg.	53	x	x
31 Cœlosphærium	1	x	
32 Crucigenia	19	x	x
33 C. apiculata (Lemm.) Schmidle.	1		x
34 C. crucifera (Wolle) Collins.	5	x	x
35 C. fenestrata Schmidle	2		x
36 C. irregularis Wille	3	x	x
37 C. lanterbornei Schmidle	1		x
38 C. quadrata Morren	11	x	x
39 Cryptomonas	33	x	x
40 C. anomala Fritsch	1		x

	Number of Samples Containing Alga	Marion County	Morgan County
41 Cyclotella	95	x	x
42 Cymbella	4	x	x
43 Diatoma	49	x	x
44 Dictyosphaerium pulchellum Wood	8	x	x
45 Dinobryon	7	x	x
46 D. sociale Ehr.	1	x	
47 D. stipitatum Stein	2	x	
48 D. tabellariæ (Lemm.) Pascher	2	x	x
49 Epithemia ?	6	x	x
50 Eudorina	17	x	x
51 E. elegans Ehr.	15	x	x
52 Euglena	134	x	x
53 E. acus Ehr.	27	x	x
54 E. acutissima Lemm.	2	x	
55 E. deses Ehr.	36	x	x
56 E. ehrenbergii Klebs	1	x	
57 E. fusca (Klebs) Lemm. ?	2	x	x
58 E. gracilis Klebs	13	x	x
59 E. intermedia (Klebs)	1		x
60 E. limnophila Lemm.	2	x	x
61 E. pisciformis Klebs	2	x	x
62 E. polymorpha Dangeard ?	3	x	
63 E. proxima Dangeard	98	x	x
64 E. spirogyra Ehr.	33	x	x
65 E. splendens Dangeard ?	1		x
66 E. terricola (Dangeard) ?	1	x	
67 E. tripteris Dujard	3	x	
68 E. truncata Walton	9	x	x
69 E. variabilis Klebs	3	x	x
70 E. viridis Ehr.	12	x	x
71 Eutreptia viridis Perty ?	1	x	
72 Fragilaria	12	x	x
73 Gloeocystopsis limneticus G. M. Smith	1		x
74 Golenkinia	6	x	x
75 G. paucispina W. and G. S. West	5	x	x
76 G. radiata Chodat	1		x
77 Gomphonema	10	x	x
78 Gonium	2	x	
79 G. pectorale Müller	1	x	
80 Gymnodinium	4	x	x
81 G. æruginosum Stein ?	1	x	
82 G. paradoxum Schilling	2	x	x

	Number of Samples Containing Alga	Marion County	Morgan County
83 <i>Hormidium</i>	1	x	
84 <i>Kirchneriella obesa</i> (W. West) Schmidle	1		x
85 <i>Lagerheimia</i>	4	x	x
86 <i>L. chodati</i> Bern	2	x	x
87 <i>L. citriformis</i> (Snow) G. M. Smith	1	x	
88 <i>L. droescheri</i> (Lemm.) Printz	1	x	
89 <i>Lepocinclis</i>	11	x	x
90 <i>L. globosa</i> Francé	1	x	
91 <i>L. sphagnophila</i> Lemm. ?	2	x	
92 <i>L. teres</i> (Schmitz)	1	x	
93 <i>L. texta</i> (Dujardin)	8	x	x
94 <i>Lyngbya</i>	25	x	x
95 <i>L. ærugineo-cærulea</i> (Ktz.) Gom.	1	x	
96 <i>L. digueti</i> Gom. ?	5	x	x
97 <i>L. distincta</i> (Nordstedt) Schmidle ?	3	x	
98 <i>L. lagerheimii</i> (Möb.) Gom.	2	x	x
99 <i>L. nana</i> Tilden ?	4	x	x
100 <i>L. putealis</i> Mont. ?	6	x	
101 <i>L. subtilis</i> W. West	3	x	x
102 <i>Melosira</i>	6	x	x
103 <i>Merismopedia glauca</i> (Ehr.) Näg.	1	x	
104 <i>Mesotæmium caldarium</i> (Lag.) Hansg.	1	x	
105 <i>Micractinium</i>	31	x	x
106 <i>M. pusillum</i> Fresenius	30	x	x
107 <i>Microcystis</i>	3	x	
108 <i>M. æruginosa</i> Ktz.	1	x	
109 <i>M. flos-aquæ</i> (Wittr.) Kirchner.	2	x	
110 <i>M. incerta</i> Lemm.	1	x	
111 <i>Microspora</i>	6	x	x
112 <i>M. stagnorum</i> (Ktz.) Lag. ?	1	x	
113 <i>M. tumidula</i> Hazen	1		x
114 <i>Mougeotia</i> (or <i>Debarya</i> ?)	2	x	
115 <i>Navicula</i>	143	x	x
116 <i>Nephrocytium agardhianum</i> Näg.	1	x	
117 <i>Nitzschia</i>	40	x	x
118 <i>Oocystis</i>	8	x	x
119 <i>O. borgei</i> Snow	4	x	
120 <i>O. pusilla</i> Hansg.	4	x	x
121 <i>Ophiocytium capitatum</i> Wolle	2	x	
122 <i>Oscillatoria</i>	94	x	x
123 <i>O. agardhii</i> Gom.	28	x	x
124 <i>O. amphibia</i> Ag.	8	x	x

	Number of Samples Containing Alga	Marion County	Morgan County
125 <i>O. boryana</i> Bory	1		x
126 <i>O. brevis</i> Ktz.	3	x	
127 <i>O. chalybea</i> Mert.	37	x	x
128 <i>O. chlorina</i> Ktz.	9	x	x
129 <i>O. formosa</i> Bory	5	x	x
130 <i>O. geminata</i> Menegh.	1		x
131 <i>O. limosa</i> Ag.	5	x	x
132 <i>O. minnesotensis</i> Tilden	1	x	
133 <i>O. numidica</i> Gom. ?	7	x	x
134 <i>O. sancta</i> Ktz.	2	x	
135 <i>O. splendida</i> Grev.	1	x	
136 <i>O. subsalsa</i> Ag.	2		x
137 <i>O. subtilissima</i> Ktz.	10	x	
138 <i>O. tenuis</i> Ag.	14	x	x
139 <i>O. terebriformis</i> Ag.	3	x	x
140 <i>Palmella</i>	1		x
141 <i>Pandorina morum</i> Bory	33	x	x
142 <i>Pediastrum</i>	84	x	x
143 <i>P. boryanum</i> (Turp.) Menegh.	54	x	x
144 <i>P. duplex</i> Meyen	71	x	x
145 <i>P. simplex</i> Meyen	34	x	x
146 <i>P. tetras</i> (Ehr.) Ralfs	7	x	x
147 <i>Phacus</i>	43	x	x
148 <i>P. acuminata</i> Stokes	2	x	
149 <i>P. caudata</i> Hübner ?	1	x	
150 <i>P. longicauda</i> (Ehr.)	21	x	x
151 <i>P. pleuronectes</i> (Mull.)	24	x	x
152 <i>P. pyrum</i> (Ehr.)	5	x	x
153 <i>P. triqueter</i> (Ehr.)	13	x	x
154 <i>Phormidium</i> ?	2	x	
155 <i>P. retzii</i> (Ag.) Gom. ?	1	x	
156 <i>P. uncinatum</i> (Ag.) Gom. ?	1	x	
157 <i>Pleodorina</i>	9	x	x
158 <i>P. illinoisensis</i> Kofoid	8	x	x
159 <i>Pleurocapsa</i> ?	12	x	x
160 <i>Pleurosigma</i>	2	x	
161 <i>Polyedriopsis spinulosa</i> Schmidle	2	x	x
162 <i>Scenedesmus</i>	142	x	x
163 <i>S. abundans</i> (Kirchner) Chodat.	4	x	x
164 <i>S. acuminatus</i> (Lag) Chodat.	4	x	x
165 <i>S. arcuatus</i> Lemm.	4	x	x
166 <i>S. bijnga</i> (Turpin) Lag.	7	x	x

	Number of Samples Containing Alga	Marion County	Morgan County
167 <i>S. denticulatus</i> Lag.	6	x	x
168 <i>S. dimorphus</i> (Turpin) Ktz.	72	x	x
169 <i>S. longus</i> Meyen	8	x	x
170 <i>S. obliquus</i> (Turpin) Ktz.	16	x	x
171 <i>S. opoliensis</i> Richter	61	x	x
172 <i>S. quadricauda</i> (Turpin) Breb.	138	x	x
173 <i>Selenastrum</i>	5	x	x
174 <i>S. bibraianum</i> Reinsch	3	x	x
175 <i>S. westii</i> G. M. Smith	2	x	x
176 <i>Sphærocystis schrœteri</i> Chodat	30	x	x
177 <i>Spirogyra</i>	15	x	x
178 <i>Spirulina major</i> Ktz.	2	x	
179 <i>Staurastrum</i>	1	x	
180 <i>Stichococcus scopulinus</i> Hazen ?	1	x	
181 <i>Stigeoclonium</i>	3	x	x
182 <i>S. lubricum</i> Ktz.	2	x	x
183 <i>Surirella</i>	5	x	x
184 <i>Synechococcus racemosus</i> Wolle	2	x	
185 <i>Synechocystis aquatilis</i> Snow	2	x	x
186 <i>Synedra</i>	156	x	x
187 <i>Synura</i>	7	x	x
188 <i>S. uvella</i> Ehr.	3	x	x
189 <i>Tabellaria</i>	51	x	x
190 <i>Tetradesmus</i>	1		x
191 <i>Tetraëdron</i>	10	x	x
192 <i>T. gracile</i> (Reinsch) Hansg.	1	x	
193 <i>T. hastatum</i> (Reinsch) Hansg.	1	x	
194 <i>T. regulare</i> Ktz.	6	x	x
195 <i>T. trigonum</i> (Näg.) Hansg.	4	x	x
196 <i>Tetrastrum</i>	3	x	
197 <i>T. staurogeniæforme</i> (Schröder) Lemm.	2	x	
198 <i>Trachelomonas</i>	19	x	x
199 <i>T. caudata</i> (Ehr.)	1		x
200 <i>T. conspersa</i> Pascher ?	1	x	
201 <i>T. crebea</i> Kellicott	2	x	
202 <i>T. fluviatilis</i> Lemm.	1	x	
203 <i>T. globularis</i> (Awerinz.)	2	x	x
204 <i>T. hispida</i> (Perty)	5	x	x
205 <i>T. intermedia</i> Dangeard	1	x	
206 <i>T. oblonga</i> Lemm. ?	1		x
207 <i>T. piscatoris</i> (Fisher)	1	x	
208 <i>T. urceolata</i> Stokes	2	x	

	Number of Samples Containing A ga	Marion County	Morgan County
209 <i>T. volvocina</i> Ehr.	4	x	
210 <i>T. westii</i> Wolosz.	2	x	
211 <i>Tribonema</i>	49	x	x
212 <i>T. bombycinum</i> (Ag.) Derbes et Solier	2	x	x
213 <i>T. minus</i> (Wille) Hazen	44	x	x
214 <i>Ulothrix tenerrima</i> Ktz.	1	x	
215 <i>Vacuolaria</i> ?	1	x	
216 <i>Westella</i> ?	9	x	x
217 <i>W. botryoides</i> (W. West) de Wildeman ?	7	x	x