

## **The National Marine Biological Analytical Quality Control Scheme**

### **Intertidal Macroalgal Ring Test RT02**

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# ALGAL RING TEST (RT02) RESULTS SUMMARY

## RING TEST DETAILS

Ring Test – RT02

Type/Contents – intertidal macroalgae

Circulated – 01/08/07

Completion Date – 15/09/07

Number of participating Laboratories – 14

Number of Results Received – 23

**Table 1: Summary of Differences**

Specimen	Genera	Species	Total differences for 23 laboratories	
			Genus	Species
RT0201	Plumaria	plumosa	1	1
RT0202	Petalonia	fascia	0	1
RT0203	Porphyra	leucosticta	2	4
RT0204	Rhodomela	confervoides	4	4
RT0205	Prasiola	stipitata	4	11
RT0206	Membranoptera	alata	1	1
RT0207	Cystoclonium	purpureum	6	6
RT0208	Gelidium	pusillum	2	7
RT0209	Phyllophora	pseudoceranooides	10	12
RT0210	Osmundea	hybrida	1	8
RT0211	Ptilota	gunneri	1	1
RT0212	Chaetomorpha	melagonium	3	4
RT0213	Asperococcus	fistulosus	0	1
RT0214	Scytosiphon	lomentaria	1	1
RT0215	Phycodrys	rubens	1	1
RT0216	Monostroma	grevillei	3	4
RT0217	Leathesia	difformis	1	1
RT0218	Plocamium	cartilagineum	0	1
RT0219	Cladophora	sericea	0	2
RT0220	Odonthalia	dentata	0	0
		total differences	41	71
		Average differences/lab.	1.864	3.227

Table 2: The identification of intertidal macroalgae made by participating laboratories for RT02. Names are given where difference from the AQC identification

	RT0201	RT0202	RT0203	RT0204	RT0205	RT0206
<b>Lab Code</b>	Plumaria plumosa	Petalonia fascia	Porphyra leucosticta	Rhodomela confervoides	Prasiola stipitata	Membranoptera alata
1a	Heterosiphonia Plumosa	-	-	-	Monostroma-	-
2a	-	-sp.	Porphyropsis coccinea	Ceramium rubrum	-	-
3a	-	-	-	Halidrys siliquosa	Ulva lactuca	-
4a	-	-	-	-	Ulva-	-
4b	-	-	Calcareous encruster	-	-	-
5a	-	-	-	-	-crispa	-
6a	-	-	-	-	-	-
6b	-	-	-	-	-	-
7a	-	-	-	-	-	-
8a	-	-	-	-	-	-
8b	-	-	-	-	-furfuracea	-
9a	-	-	-	-	-	-
9b	-	-	-	-	-	-
9c	-	-	-	-	-	-
9d	-	-	-	-	-furfuracea	-
10a	-	-	-	-	Blidingia minima	-
11a	-	-	-	-	-	-
12a	-	-	-umbilicalis	-	-furfuracea	-
13a	-	-	-	-	-furfuracea	-
14a	-	-	-	-	-furfuracea	-
14b	-	-	-	-	-	-
14c	-	-	-umbilicalis	-	-furfuracea	Apoglossum ruscifolium
14d	-	-	-	Furcellaria lumbricalis	-	-

Table 2 continued

	RT0207	RT0208	RT0209	RT0210	RT0211
<b>Lab Code</b>	Cystoclonium purpureum	Gelidium pusillum	Phyllophora pseudoceranoides	Osmundea hybrida	Ptilota gunneri
<b>1a</b>	-	-	-	-pinnatifida	-
<b>2a</b>	-	-sp.	-	[laurencia]-	-[plumosa]
<b>3a</b>	Gracilaria gracilis	-	Cryptopleura ramosa	-	-
<b>4a</b>	Gracilaria gracilis	?	-	Gastroclonium ovatum	-[gunneris]
<b>4b</b>	Gracilaria gracilis	Lomentaria clavellosa	-	-	-
<b>5a</b>	-	-sp.	Palmaria palmata	-	-
<b>6a</b>	-	-	-	-pinnatifida	-
<b>6b</b>	-	-latifolium	-	-pinnatifida	-
<b>7a</b>	-	-	-	-	-
<b>8a</b>	-	-	-	-osmunda	-
<b>8b</b>	-	-sp.	-	-osmunda	-
<b>9a</b>	-	-	Chondrus crispus	-	-
<b>9b</b>	-	-	-	-osmunda	-
<b>9c</b>	-	-	Chondrus crispus	-	Heterosiphonia plumosa
<b>9d</b>	-	-	-	-pinnatifida	-
<b>10a</b>	-	-	-sp.	-	-
<b>11a</b>	Gracilaria gracilis	-	Chondrus crispus	-	-
<b>12a</b>	-	-	Rhodomenia pseudopalmata	-	-
<b>13a</b>	Gracilaria gracilis	-latifolium	Rhodomenia pseudopalmata	-	-
<b>14a</b>	[Cystoclonium]-	-[pusillum]	Chondrus crispus	-	-
<b>14b</b>	-	-	-	-	-
<b>14c</b>	Gracilaria bursa pastoris	-	Mastocarpus stellatus	-	-
<b>14d</b>	-	-	-	-	-

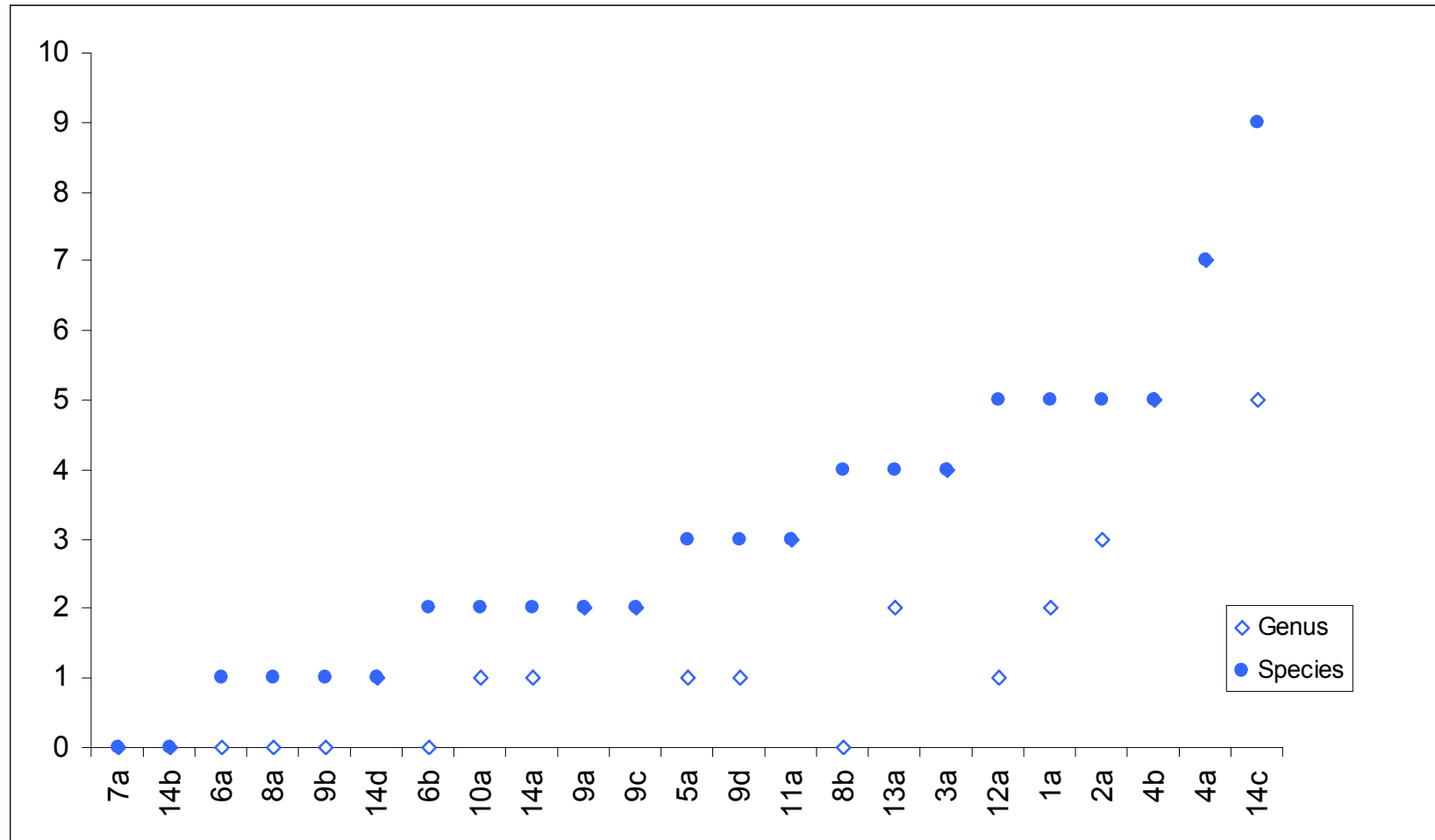
Table 2 continued

	RT0212	RT0213	RT0214	RT0215	RT0216
<b>Lab Code</b>	Chaetomorpha melagonium	Asperococcus fistulosus	Scytosiphon lomentaria	Phycodrys rubens	Monostroma grevillei
<b>1a</b>	-	-	-	Delesseria sanguinea	-
<b>2a</b>	-	-	-	-	Ulva lactuca
<b>3a</b>	-	-	-	-	-
<b>4a</b>	-	-	-	-	-
<b>4b</b>	-	-	-	-	-
<b>5a</b>	-	-	-	-	-
<b>6a</b>	-	-	-	-	-
<b>6b</b>	-	-	-	-	-
<b>7a</b>	-	-	-	-	-
<b>8a</b>	-	-	-	-	-
<b>8b</b>	-	-	-	-	-sp.
<b>9a</b>	-	-	-	-	Ulva lactuca
<b>9b</b>	-	-	-	-	-
<b>9c</b>	-	-	-	-	-
<b>9d</b>	-	-	-	-	Ulva lactuca
<b>10a</b>	-	-	-	-	-
<b>11a</b>	Urospora wormskieldii	-	-	-	-
<b>12a</b>	-linum	-	-	-	-
<b>13a</b>	-	-	-	-	-
<b>14a</b>	-	-	-	-	-
<b>14b</b>	-	-	-	-	-
<b>14c</b>	-	-bullosus	Dumontia contorta	-	-
<b>14d</b>	-	-	-	-	-

Table 2 continued

	RT0217	RT0218	RT0219	RT0220
Lab Code	Leathesia difformis	Plocamium cartilagineum	Cladophora sericea	Odonthalia dentata
1a	-	-		
2a	-	-		
3a	-	-	[Cladophera]-	
4a	-	-	[Cladophera]-	
4b	-	-		
5a	-	-		
6a	-	-		
6b	-	-		
7a	-	-[cartilaginum]		
8a	-	-		[Odonthalia]-
8b	-	-		
9a	-[difformis]	-[cartilaginum]	[Cladophera]-	
9b	[Leathesia]-	-[cartilagenum]		[Odenthalia]-
9c	-	-		
9d	-	-		
10a	-	-	-	-
11a	-	-		
12a	[Laethesia]-	-	-dalmatica	
13a	-	-		
14a	-	-		
14b	-	-		
14c	Petrospongium berkeleyi	-	-albida	
14d	-	-		

Figure 1: The number of differences from the AQC identification of intertidal macroalgae specimens, for each of the participating laboratories for RT02, arranged in order of increasing number of differences.



## Detailed breakdown of specimen identifications

### RT0201 – Plumaria plumosa

One generic and one specific difference recorded. Lab 4a identified as *Heterosiphonia plumosa* (this has a polysiphonous main axes whereas *Plumaria* is monosiphonous throughout).

### RT0202 – Petalonia fascia

One specific difference recorded: Lab 2a identified to genus level only.

### RT0203 – Porphyra leucosticta

Two generic and four specific differences recorded. Labs 14c and 12a identified as *P. umbilicalis* (which has a very distinct central holdfast). Lab 2a identified as *Porphyropsis coccinea* (is much smaller in overall size and cell size than *Porphyra* sp.) Lab 4b identified as calcareous encruster (which is a hard crustose species unlike the thin foliose form of *Porphyra*).

### RT0204 – Rhodomela confervoides

Four generic and four specific differences recorded: Lab 2a identified as *Ceramium rubrum* (which usually has a distinct banding due to cellular arrangement consisting of single row of axial cells covered by numerous smaller cells), Lab 3a identified as *Halidrys siliquosa* (this is a thick cartilaginous brown species, *Rhodomela confervoides* is a filiform red species), Lab 14d identified as *Furcellaria lumbricalis* (this has less profuse branching which is characteristically dichotomous, plant is much courser with distinct clawed basal attachment) and Lab 4b did not identify the species.

### RT0205 – Prasiola stipitata

Four generic and eleven specific differences recorded: Labs 4a and 3a identified as *Ulva* and *Ulva lactuca* respectively, Lab 1a identified as *Monostroma* and Lab 10a identified as *Blidingia minima* (these species all lack the distinct regular arrangement of cells found in *Prasiola* sp., cells often seen in packets of 4 or as distinct rows and columns). Lab 5a identified as *P. crispa* (this lacks the stipe or disc like attachment found in *P. stipitata*) and Labs 8b, 9d, 14a, 14c, 12a and 13a identified as *P. furfuracea* (which is not common to British shores).

### RT0206 – Membranoptera alata

One generic and one specific difference: Lab 14c identified as *Apoglossum ruscifolium* (which has branches arising from centre of midrib only instead of from the blade margin as found in *Membranoptera*).

### RT0207 – Cystoclonium purpureum

6 generic and 6 specific differences recorded: Labs 4a, 3a, 4b, 11a and 13a identified as *Gracilaria gracilis* and Lab 14c identified as *Gracilaria bursa pastoris* (both of which lack the branched or claw-like holdfast).



#### RT0208 – Gelidium pusillum

Two generic and seven specific differences recorded: Lab 4a did not identify the species, Labs 2a, 5a and 8b identified to genus only. Labs 6b and 13a identified as *G. latifolium* (which is wider than *G. pusillum* and much more compressed) and Lab 4b identified as *Lomentaria clavellosa* (which displays regular pinnate branching).

#### RT0209 – Phyllophora pseudoceranooides

Ten generic and twelve specific difference recorded: Lab 4a did not identify the species, Labs 1a and 10a identified to genus only. Labs 8a, 9b, 9d and 14d identified as *Chondrus crispus* (this is much thicker and cartilaginous and darker in colour ), Lab 2a identified as *Cryptopleura ramosa* (lacks the distinct stipe but also has veins not found in *Phyllophora* sp.), Lab 4b identified as *Palmaria palmata* (this also lacks the distinct stipe and is much thicker and darker in colour), Lab 14b identified as *Mastocarpus stellatus* (which has a channelled frond) and Labs 11a and 12a identified as *Rhodymenia pseudopalmata* (this species has a much shorter stipe).

#### RT0210 – Osmundea hybrida

One generic and eight specific differences recorded. Lab 4a identified as *Gastroclonium ovatum* (which has distinct sacs in bunches at the frond tips not found in *Osmundea*), Labs 1a, 6a, 6b and 9d identified as *O. pinnatifida* (which has a stoloniferous holdfast with terminal grooves at the apices) and Labs 8b, 8a and 9b identified as *O. Osmunda* (which has a broader and more flattened axes and a terminal groove at the apices).

#### RT0211 – Ptilota gunneri

One generic and one specific difference recorded: Lab 9c identified as *Heterosiphonia plumosa* (this has a polysiphonous main axis and monosiphonous branching and lacks the distinct alternate arrangement of long and short apical branches as seen *P. gunneri*).

#### RT0212 – Chaetomorpha melagonium

Three generic and 4 specific differences recorded. Labs 4a and 4b did not identify this species. Lab 12a identified as *C. linum* (this is found in larger woolly/curly masses with slightly smaller cells compared with the solitary form of *C. melagonium*) and Lab 11a identified as *Urospora Wormskioldii* (this has much smaller cells and tends to be found in more tangled masses).

#### RT0213 – Asperococcus fistulosus

One specific difference recorded: Lab 14c identified as *A. bullosus* (this species is much wider in form and has a stalked base).

#### RT0214 – Scytosiphon lomentaria

One generic and one specific difference recorded: Lab 14c identified as *Dumontia contorta* (this is a similar species but belongs to the Rhodophyta division, where as *S. lomentaria* is brown in colour belonging to the Phaeophyta).

RT0215 – Phycodrys rubens

One generic and one specific difference recorded: Lab 1a identified as *Delesseria sanguinea* (blade edge tends to be smoother, ruffled but not deeply indented, resembles elongated beech leaf, *P. rubens* resembles oak leaf).

RT0216 – Monostroma grevillei

Three generic and four specific differences recorded: Lab 8b identified to genus only. Labs 2a, 9a and 9d identified as *Ulva lactuca* (this is two cells thick, *Monostroma* is only one cell thick).

RT0217 – Leathesia difformis

One generic and one specific difference recorded. Lab 14c identified as *Petrospongium berkeleyi* (this species forms a hemispherical solid gelatinous mass compared to the globose spherical and hollow form of *Leathesia*).

RT0218 – Plocamium cartilagineum

One specific difference recorded: Lab 1a identified to genus level only.

RT0219 – Cladophora sericea

Two specific difference recorded: Lab 14c identified as *C. albida* and Lab 12a identified as *C. dalmatica* (both these species lack the strong secund branching present in *C. sericea*).

RT0220 – Odonthalia dentata

No differences recorded.

The number of correct answers varied from 26 to 40 based on 1 point awarded for correct species name and 1 point awarded for correct genus name. The maximum possible total was 40. Only 1 species was correctly identified by all 23 participants. The table below indicates the total scores awarded to each laboratory based on the results submitted.

Table 3: Individual laboratory scores

<b>Lab Code</b>	<b>Total Score</b>
<b>1a</b>	33
<b>2a</b>	32
<b>3a</b>	32
<b>4a</b>	26
<b>4b</b>	30
<b>5a</b>	36
<b>6a</b>	39
<b>6b</b>	38
<b>7a</b>	40
<b>8a</b>	39
<b>8b</b>	36
<b>9a</b>	36
<b>9b</b>	39
<b>9c</b>	36
<b>9d</b>	36
<b>10a</b>	37
<b>11a</b>	34
<b>12a</b>	34
<b>13a</b>	34
<b>14a</b>	37
<b>14b</b>	40
<b>14c</b>	26
<b>14d</b>	38