**Table S3:** Characteristics of Tristan da Cunha *Gelidium* collections from which specimens were sequenced in this study. Collections are designated by the codes shown in Table S1. ND, not determined or unknown.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **concin 1** | **concin 2** | **concin 3** | **TCD20** | **inflex** | **Nightingale 2010 008** | **Nightingale 2010 023** | **Tristan 2010 049** |
| Habitat | tide pools | subtidal | ND | tide pools | upper intertidal | subtidal 13-30 m | upper intertidal | ND |
| Height | up to1.5 cm | 3.5 - 5 cm | 4.5 – 6.5 cm | up to 6.5 cm | up to 2.5 cm | up to 15 cm | up to 2.5 cm | up to 6 cm |
| No. main axes | multiple | 1 or multiple | multiple | multiple | multiple | multiple | multiple | 1 or multiple |
| Main axes shape | linear / lanceolate | linear / lanceolate | linear / elongately clavate | linear / elongately clavate | linear, lanceolate, elongately clavate | linear / lanceolate | lanceolate | linear / lanceolate |
| Main axes width | 0.5 mm | 0.5 – 1.0 mm | 1.0 – 1.2 mm | up to 1.6 mm | 0.4 – 0.5 mm | up to 1.6 mm | up to 1.5 mm | up to 1.6 mm |
| Main axes thickness | 130 - 150 µm | 150 µm | 190-230 µm | ND | 150 - 180 µm | 250 µm | 190-210 µm | 200 µm |
| Main axes shape in transverse section | compressed | compressed to somewhat flattened | compressed to somewhat flattened | ND | compressed | compressed to somewhat flattened | compressed to somewhat flattened | compressed to somewhat flattened |
|  |  |  |  |  |  |  |  |  |
| Branching plane | pinnate | pinnate | pinnate | pinnate | pinnate | pinnate | pinnate or clustered | pinnate |
| Branching pattern | alternate to opposite | alternate to opposite | alternate to opposite | alternate to opposite4 | alternate to opposite | alternate to opposite | alternate to opposite; irregular where branches clustered | alternate to opposite |
| Branch apices | obtuse to broadly acute; often emarginate when fertile | obtuse; often emarginate when fertile | obtuse to broadly acute; often emarginate when fertile | obtuse; often emarginate when fertile | obtuse; often emarginate when fertile | obtuse; often emarginate when fertile | obtuse to broadly acute; often emarginate when fertile | obtuse; often emarginate when fertile |
| Branch bases | tapered to constricted | tapered to constricted | tapered to constricted | tapered to constricted | mostly tapered to constricted | tapered to constricted | tapered to constricted | tapered to constricted |
| Orders of branches | 3 – 4 (5) | 4 | 3 – 4 | 3 - 4 | 3 - 4 | 3 - 4 | 3 – 4+ | 3 - 4 |
|  |  |  |  |  |  |  |  |  |
| Surface cortical cell diameter | 4 – 6 µm | ND | 5 – 7 µm | 3 – 7 µm | 5 – 8 µm | 4 – 8 µm | 5 – 7 µm | ND |
| Distribution of internal rhizoidal filaments | throughout inner cortex and medulla | throughout inner cortex and medulla | throughout inner cortex and medulla | throughout inner cortex and medulla | throughout inner cortex and medulla | throughout inner cortex and medulla of branches; inner cortex and outer medulla of main axes | throughout inner cortex and medulla | throughout inner cortex and medulla; sometimes more in inner cortex and outer medulla |
| Sporangia type | ND | bisporangia | ND | bisporangia | bisporangia | bisporangia | bisporangia | ND |
| Sporangia size | ND | ca. 30 x 35 µm | ND | ca. 25 x 40 µm | ca. 22 x 37 µm | ca. 25 x 35 µm | ND | ND |
| Sorus shape | ND | ellipsoidal to elongate  | ND | ellipsoidal to elongate | ND | ellipsoidal to elongate  | ND | ND |
| Sorus margin | ND | ill-defined  | ND | ill-defined | ND | ill-defined | ND | ND |