**Table S2** - Morphological characters used on demosponges identification. Spicules diversity and length measurements presented in nm. For each spicule type, at least 10 different spicules were measured.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Specimen  code | Species | Spicules | | | |
| Megascleres | | Microscleres | |
| Type | Length (nm) | Type | Length (nm) |
| M25O | *Stelligera rigida* (Montagu, 1814) | styles | 650-756 | euasters | 10-23 |
| styles | >1200 |  |  |
| B30A | *Cliona celata* Grant, 1826 | tylostyles | 183-388 |  |  |
| M25Q | *Haliclona* sp.1 | oxeas | 89-100 |  |  |
| M2MK | *Haliclona* sp.2 | oxeas | 171-185 |  |  |
| B30E | *Haliclona (Rhizoniera)* *rosea* (Bowerbank, 1866) | oxeas | 122-136 |  |  |
| M25D | *Haliclona (Haliclona) simulans* (Johnston, 1842) | oxeas | 117-146 |  |  |
| M25N | *Crella* (*Yvesia*) *rosea* (Topsent, 1892) | strongyloxeas | 129-179 | arcuate isochelae | 15-16 |
| acanthostyles | 62-110 |  |  |
| acanthostyles | 112-213 |  |  |
| A26E | *Amphilectus fucorum* (Esper, 1794) | styles | 168-341 |  |  |
| A26G | *Phorbas plumosus* (Montagu, 1814) | acanthostyles | 67-120 | isochelae | 13-21 |
| acanthostyles | 149-197 |  |  |
| tornotes | 138-195 |  |  |
| M2MF | *Antho* (*Antho*) *granditoxa* Picton & Goodwin, 2007 | styles | 161-257 | palmate isochelae | 14 |
| styles | 186-396 | toxa | 53-76 |
| acanthostyles | 120-174 | toxa | 108-210 |
| M23A | *Clathria* sp. | subtylostyles | 114-513 | palmate isochelae | 14-19 |
| styles | 128-393 | toxa | 43-132 |
| M25B | *Ophlitaspongia papilla* Bowerbank, 1866 | subtylostyles | 66-152 | toxa | 39-133 |
| styles | 105-138 |  |  |
| M1MB | *Myxilla* (*Myxilla*) *rosacea* (Lieberkühn, 1859) | tornotes | 134-162 | anchorate chelae | 11-24 |
| acanthostyles | 128-159 | sigmata | 19-35 |
| M35G | *Tedania* (*Tedania*) *pilarriosae* Cristobo, 2002 | tornotes | 199-305 | raphides | 118-202 |
| styles | 226-309 |  |  |
| M25G | *Polymastia* sp.1 | tylostyles | 25-207 |  |  |
| tylostyles | 376-420 |  |  |
| tylostyles | 600-865 |  |  |
| M37A | *Polymastia* sp.2 | tylostyles | 87-172 |  |  |
| tylostyles | 280-569 |  |  |
| tylostyles | 667-969 |  |  |
| M25H | *Polymastia* *agglutinans* Ridley & Dendy, 1886 | tylostyles | 104-213 |  |  |
| tylostyles | 400-642 |  |  |
| tylostyles | 828-1476 |  |  |
| M21C | *Polymastia penicillus* (Montagu, 1814) | tylostyles | 71-178 |  |  |
| tylostyles | 323-677 |  |  |
| tylostyles | 971-1250 |  |  |
| E16A | *Halichondria (Halichondria) bowerbanki* Burton, 1930 | oxeas | 147-402 |  |  |
| M21A | *Halichondria* (*Halichondria*) *panicea* (Pallas, 1766) | oxeas | 241-287 |  |  |
| E22A | *Hymeniacidon perlevis* (Montagu, 1814) | styles | 260-354 |  |  |
| M35D | *Aaptos aaptos* (Schmidt, 1864) | styles | 101-421 |  |  |
| strogyloxeas | 254-539 |  |  |
| M25A | *Aaptos papillata* (Keller, 1880) | strogyloxeas | 918-1391 |  |  |
| tylostyles | 157-556 |  |  |
| M24C | *Dysidea fragilis* (Montagu, 1814) | no spicules | | | |
| MF42A | *Ircinia variabilis* (Schmidt, 1864) | no spicules | | | |
| A19F | *Aplysilla rosea* (Barrois, 1876) | no spicules | | | |