**Table S3** – Molecular information on sequenced demosponges specimens. Top blast match refers to the similarity of the sequences from the present study with NCBI nucleotide database. (a): refers to when % of similarity were bellow 95% on blast match, not showing the results.

| **Specimen code** | **collection date** | **study site** | **latitude** | **longitude** | **species** | **Authority** | **COI accession number** | **Top blast match** | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **species identification** | **accession number** | **% similarity** |
| M24I | 28/11/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Stelligera rigida* | (Montagu, 1814) | KY492523 | *Stelligera rigida* voucher BELUM<GBR>:Mc4357 | HQ379420 | 100 |
| M25O | 24/01/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Stelligera rigida* | (Montagu, 1814) | KY492522 | *Stelligera rigida* voucher BELUM<GBR>:Mc4357 | HQ379420 | 100 |
| M23C | 29/09/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Stelligera rigida* | (Montagu, 1814) | KY492524 | *Stelligera rigida* voucher BELUM<GBR>:Mc4357 | HQ379420 | 100 |
| B30A | 06/06/2012 | Buarcos | N40°9'22,36'' | W8°52'18,49'' | *Cliona celata* | Grant, 1826 | KY492596 | *Cliona celata* voucher Mc4026 | HM999039 | 100 |
| M23F | 29/09/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Cliona celata* | Grant, 1826 | KY492595 | *Cliona celata* voucher Mc4026 | HM999039 | 100 |
| Pn1MA | 28/09/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Cliona celata* | Grant, 1826 | KY492593 | *Cliona celata* voucher Mc4026 | HM999039 | 100 |
| P2MA | 03/10/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Cliona celata* | Grant, 1826 | KY492594 | *Cliona celata* voucher Mc4026 | HM999039 | 100 |
| M25Q | 24/01/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Haliclona* sp.1 |  | KY492586 | *Haliclona* sp. L GPM-2011 | JN242204 | 99,7 |
| P2MK | 03/10/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Haliclona* sp.2 |  | KY492585 | Demospongiae sp. GW3387 voucher BSPG-SNSB.GW3387 | KU060634 | 99 |
| Ag26E | 08/03/2012 | Aguda | N41°2'58,35'' | W8°39'19,22'' | *Amphilectus fucorum* | (Esper, 1794) | KY492598 | *Clathria conectens* voucher QMB G304980 | HE611603 | 98,6 |
| Ag26G | 08/03/2012 | Aguda | N41°2'58,35'' | W8°39'19,22'' | *Phorbas plumosus* | (Montagu, 1814) | KY492535 | *Phorbas* sp. MTR-2018 isolate S12.4 | MH784611 | 97,6 |
| B30F | 06/06/2012 | Buarcos | N40°9'22,36'' | W8°52'18,49'' | *Phorbas plumosus* | (Montagu, 1814) | KY492534 | *Phorbas* sp. MTR-2018 isolate S12.4 | MH784611 | 97,6 |
| M35H | 16/10/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Phorbas plumosus* | (Montagu, 1814) | KY492532 | *Phorbas* sp. MTR-2018 isolate S12.4 | MH784611 | 96,9 |
| M35O | 16/10/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Phorbas plumosus* | (Montagu, 1814) | KY492531 | *Phorbas* sp. MTR-2018 isolate S12.4 | MH784611 | 96,9 |
| M25N | 24/01/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Phorbas plumosus* | (Montagu, 1814) | KY492533 | *Phorbas* sp. MTR-2018 isolate S12.4 | MH784611 | 96,9 |
| P2MF | 03/10/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Antho (Antho) granditoxa* | Picton & Goodwin, 2007 | KY492597 | a |  |  |
| M21E | 18/07/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Clathria* sp. |  | KY492547 | *Clathria prolifera voucher USNM:IZ:1287150* | KU905733 | 98,6 |
| *Ophlitaspongia papilla* isolate OP-2 | KF225484 | 99,1 |
| M35B | 16/10/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Clathria* sp. |  | KY492542 | *Clathria prolifera* voucher USNM:IZ:1287150 | KU905733 | 98,2 |
| *Ophlitaspongia papilla* isolate OP-2 | KF225484 | 98,6 |
| M31B | 21/06/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Clathria* sp. |  | KY492544 | *Clathria prolifera* voucher USNM:IZ:1287150 | KU905733 | 98,4 |
| *Ophlitaspongia papilla* isolate OP-2 | KF225484 | 98,9 |
| MC41D | 25/05/2013 | Monte Clérigos | N37°20'29,35'' | W8°51'10,05'' | *Clathria* sp. |  | KY492538 | *Clathria prolifera* voucher USNM:IZ:1287150 | KU905733 | 98,6 |
| *Ophlitaspongia papilla* isolate OP-3 | KF225485 | 99,1 |
| M12B | 10/09/2010 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Ophlitaspongia papilla* | Bowerbank, 1866 | KY492549 | *Clathria prolifera* voucher USNM:IZ:1287150 | KU905733 | 99,9 |
| M35F | 16/10/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Ophlitaspongia papilla* | Bowerbank, 1866 | KY492540 | *Ophlitaspongia papilla* isolate OP-3 | KF225485 | 100 |
| M31F | 21/06/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Ophlitaspongia papilla* | Bowerbank, 1866 | KY492543 | *Ophlitaspongia papilla* isolate OP-3 | KF225485 | 100 |
| M35I | 16/10/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Ophlitaspongia papilla* | Bowerbank, 1866 | KY492539 | *Ophlitaspongia papilla* isolate OP-2 | KF225484 | 100 |
| M25E | 24/01/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Ophlitaspongia papilla* | Bowerbank, 1866 | KY492545 | *Ophlitaspongia papilla* isolate OP-2 | KF225484 | 100 |
| M35E | 16/10/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Ophlitaspongia papilla* | Bowerbank, 1866 | KY492541 | *Ophlitaspongia papilla* isolate OP-2 | KF225484 | 100 |
| M20J | 20/01/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Ophlitaspongia papilla* | Bowerbank, 1866 | KY492548 | *Ophlitaspongia papilla* isolate OP-2 | KF225484 | 100 |
| M23G | 29/09/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Ophlitaspongia papilla* | Bowerbank, 1866 | KY492546 | *Ophlitaspongia papilla* isolate OP-2 | KF225484 | 100 |
| V27E | 04/06/2012 | Viana do Castelo | N41°41'48,79'' | W8°51'4,03'' | *Ophlitaspongia papilla* | Bowerbank, 1866 | KY492537 | *Ophlitaspongia papilla* isolate OP-3 | KF225485 | 100 |
| PN1MC | 28/09/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Myxilla* (*Myxilla*) *rosacea* | (Lieberkühn, 1859) | KY492550 | *Desmapsamma anchorata* voucher UCMPWC1660 | HE591461 | 98,3 |
| P2MI | 03/10/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Myxilla* (*Myxilla*) *rosacea* | (Lieberkühn, 1859) | KY492536 | *Desmapsamma anchorata* voucher UCMPWC1660 | HE591461 | 98,7 |
| P2MC | 03/10/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Tedania* (*Tedania*) *pilarriosae* | Cristobo, 2002 | KY492521 | *Tedania massa* voucher NIWA29225 | LN850247 | 98,2 |
| M25J | 24/01/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Tedania* (*Tedania*) *pilarriosae* | Cristobo, 2002 | KY492520 | *Tedania massa* voucher NIWA29225 | LN850247 | 98,2 |
| M31A | 21/06/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Ted Tedania* (*Tedania*) *pilarriosae* | Cristobo, 2002 | KY492519 | *Tedania massa* voucher NIWA29225 | LN850247 | 98,1 |
| M35G | 16/10/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Tedania* (*Tedania*) *pilarriosae* | Cristobo, 2002 | KY492518 | *Tedania massa* voucher NIWA29225 | LN850247 | 97,7 |
| M25H | 24/01/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Polymastia agglutinans* | Ridley & Dendy, 1886 | KY492529 | *Polymastia penicillus* voucher BELUM:MC6505 | LN606464 | 100 |
| M24B | 28/11/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Polymastia agglutinans* | Ridley & Dendy, 1886 | KY492530 | *Polymastia penicillus* voucher BELUM:MC6505 | LN606464 | 100 |
| M35A | 16/10/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Polymastia agglutinans* | Ridley & Dendy, 1886 | KY492528 | *Polymastia penicillus* voucher BELUM:MC6505 | LN606464 | 100 |
| M31D | 21/06/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Polymastia penicillus* | (Montagu, 1814) | KY492526 | *Polymastia penicillus* voucher BELUM:MC6505 | LN606464 | 100 |
| M21C | 18/07/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Polymastia penicillus* | (Montagu, 1814) | KY492527 | *Polymastia penicillus* voucher BELUM:MC6505 | LN606464 | 100 |
| M25G | 24/01/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Polymastia* sp. |  | KY492525 | *Polymastia euplectella* voucher ZMBN:98044 | HG423710 | 99,5 |
| SB16A | 24/10/2010 | Esposende | N41°34'25,59'' | W8°47'54,81'' | *Halichondria* (*Halichondria*) *panicea* | (Pallas, 1766) | KY492588 | *Halichondria panicea* | KC869423 | 99,2 |
| B32B | 03/08/2012 | Buarcos | N40°9'22,36'' | W8°52'18,49'' | *Halichondria* sp. |  | KY492592 | a |  |  |
| M24E | 28/11/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Halichondria* sp. |  | KY492591 | a |  |  |
| M31G | 21/06/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Halichondria* sp. |  | KY492590 | a |  |  |
| V27A | 04/06/2012 | Viana do Castelo | N41°41'48,79'' | W8°51'4,03'' | *Halichondria* sp. |  | KY492587 | a |  |  |
| MF42B | 26/05/2013 | Vila Nova Milfontes | N37°42'58,61'' | W8°47'4,79'' | *Halichondria* sp. |  | KY492589 | a | KT253827 | 95,5 |
| Ag19A | 24/11/2010 | Aguda | N41°2'58,35'' | W8°39'19,22'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492584 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 99,9 |
| Ag19B | 24/11/2010 | Aguda | N41°2'58,35'' | W8°39'19,22'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492583 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| M21B | 18/07/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492565 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| Ag19D | 24/11/2010 | Aguda | N41°2'58,35'' | W8°39'19,22'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492581 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 99,8 |
| M31N | 21/06/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492560 | *Hymeniacidon perlevis* MNRJ19305 | MG885805 | 99,8 |
| An13F | 12/10/2010 | Angeiras | N41°16'6,08'' | W8°43'33,39'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492572 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 99,8 |
| M35N | 16/10/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492559 | *Hymeniacidon perlevis* MNRJ19305 | MG885805 | 99,8 |
| Al17B | 06/11/2010 | Almograve | N37°39'2,7'' | W8°48'10,8'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492579 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| Ag19I | 24/11/2010 | Aguda | N41°2'58,35'' | W8°39'19,22'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492580 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| V27B | 04/06/2012 | Viana do Castelo | N41°41'48,79'' | W8°51'4,03'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492552 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| SB16B | 24/10/2010 | Esposende | N41°34'25,59'' | W8°47'54,81'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492554 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| Al17D | 06/11/2010 | Almograve | N37°39'2,7'' | W8°48'10,8'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492578 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| An13C | 12/10/2010 | Angeiras | N41°16'6,08'' | W8°43'33,39'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492575 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| M25I | 24/01/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492561 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| An13D | 12/10/2010 | Angeiras | N41°16'6,08'' | W8°43'33,39'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492574 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| SB22A | 14/09/2011 | Esposende | N41°34'25,59'' | W8°47'54,81'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492553 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| Ap28A | 05/06/2012 | Apúlia | N41°29'17,34'' | W8°46'59,38'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492570 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| Ag19C | 24/11/2010 | Aguda | N41°2'58,35'' | W8°39'19,22'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492582 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| B32C | 03/08/2012 | Buarcos | N40°9'22,36'' | W8°52'18,49'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492569 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| M12C | 10/09/2010 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492567 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| V27C | 04/06/2012 | Viana do Castelo | N41°41'48,79'' | W8°51'4,03'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492551 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| M21F | 18/07/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492564 | *Hymeniacidon perlevis* isolate Hymper1 | HM035983 | 99,7 |
| An13G | 12/10/2010 | Angeiras | N41°16'6,08'' | W8°43'33,39'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492571 | *Hymeniacidon perlevis* isolate Hymper1 | HM035983 | 99,7 |
| M12A | 10/09/2010 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492568 | *Hymeniacidon perlevis* isolate Hymper1 | HM035983 | 99,7 |
| An13E | 12/10/2010 | Angeiras | N41°16'6,08'' | W8°43'33,39'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492573 | *Hymeniacidon perlevis* isolate Hymper1 | HM035983 | 99,7 |
| An13A | 12/10/2010 | Angeiras | N41°16'6,08'' | W8°43'33,39'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492577 | *Hymeniacidon perlevis* isolate Hymper1 | HM035983 | 99,7 |
| An13B | 12/10/2010 | Angeiras | N41°16'6,08'' | W8°43'33,39'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492576 | *Hymeniacidon perlevis* isolate Hymper1 | HM035983 | 99,7 |
| P2ML | 03/10/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492556 | *Hymeniacidon perlevis* isolate Hymper1 | HM035983 | 100 |
| M20B | 20/01/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492566 | *Hymeniacidon perlevis* MNRJ19305 | MG885805 | 99,5 |
| M23B | 29/09/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492562 | *Hymeniacidon perlevis* MNRJ19305 | MG885805 | 100 |
| M23A | 29/09/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492563 | *Hymeniacidon perlevis* MNRJ19305 | MG885805 | 100 |
| PC18A | 06/11/2010 | Porto Côvo | N37°52'3,04'' | W8°47'37,19'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492555 | *Hymeniacidon perlevis* isolate Hymper1 | HM035983 | 99,8 |
| MF42C | 26/05/2013 | Vila Nova Milfontes | N37°42'58,61'' | W8°47'4,79'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492558 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| MF42E | 26/05/2013 | Vila Nova Milfontes | N37°42'58,61'' | W8°47'4,79'' | *Hymeniacidon perlevis* | (Montagu, 1814) | KY492557 | *Hymeniacidon perlevis* isolate HM-1 | KF225481 | 100 |
| M24A | 28/11/2011 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Aaptos papillata* | (Keller, 1880) | KY492600 | *Aaptos aaptos* voucher Po.25875 | KX866769 | 99,4 |
| M25A | 24/01/2012 | Memória | N41°13'52,27'' | W8°43'18,34'' | *Aaptos papillata* | (Keller, 1880) | KY492599 | *Aaptos aaptos* voucher Po.25875 | KX866769 | 99,3 |