

Supplementary Text S1. The DNA barcodes of tested tardigrades.

Milnesium pacificum sp. nov. MW 18s rDNA LC511088

ATGCATGTCTAAGTACTTGCTTTAACAAGGCGAAACCGCGAATGGCTCATTAAATCAGTTATGGTTC
ACTAGATCGTATCAATCCTACATGGATAACTGTGGTAATTCTAGAGCTAATACATGCAATGAAGCCG
TCTGGCCTTGTGTGTCAGCGGCGCAGTTATTAGATTA AAAACCAATATAGGCTTTTCGGGTCTATTAACCT
GTGATGAATCTGAATAACCGAAGCAGAGCGCATGGTCTCGTACCGGCGCCAGATCTTTCAAGTGTCT
GATCTATCAGCTTGTGCTAGGTTATGTTCCCTAGCGTGGCTTCGACGGGTAAACGGGGTATCAGGGTC
CGATACCGGAGAGGGAGCCTGAGAAATGGCTACCACATCCAAGGAAGGCAGCAGGCGCGCAAATTAC
CCACTCCCAGCTCGGGGAGGTAGTGACGAAAAATAACGATGCGGGAGCATAATGCTTCCCCTAATCG
GAATGAGTACACTTTAAATCCTTTAACGAGGATCAATTGGAGGGCAAGTCTGGTGCCAGCAGCCGCG
GTAATTCCAGCTCCAATAGCGTATATTAAGTTGCTGCGGTTAAAAAGCTCGTAGTTGGATCTGGGT
GCTTCGATGAGTGGTGCATCTATTCGATGTCTACTACTCCATCGACACCACAAGCCAACCATGTCTCT
TCTATGCCCTTCACTGGGCGTAAGATAATGGGCGGTTGGAACGTTTACTTTGAAAAAATTAGAGTGC
TCAGAGCAGGCGTATGGCCTTGAATAATGGTGCATGGAATAATGGAATAGGACCTCGGTTCTATTTG
TTGGTTTTCAAGAGCTCGAGGTAATGATAAAGAGGAACAGACGGGGGCATTTCGTATTGCGACGTTAG
AGGTGAAACTCTTGGATCGTCGCAAGACGAACTACTGCGAAAGCATTGCAAGAATGTTTTCATTA
ATCAAGAACGAAAGTTAGAGGTTTCAAGGCGATCAGATACCGCCCTAGTTCTAACCATAAACGATGC
CAACCAGCGATCTGTGCGGTGTTTATTTAACGACTCGACAGGCAGCTTCCGGGAAACCAAAGTGCTTA
GGTTCGGGGGAAGTATGGTTGCAAAGCTGAAACTTAAAGGAATTGACGGAAGGGCACCACCAGGAG
TGGAGCCTGCGGCTTAATTTGACTCAACACGGGAAAACTCACCCGGCCCGGACACTGTAAGGATTGA
CAGATTGAGAGCTCTTTCTTGATTCGGTGGGTGGTGGTGCATGGCCGTTCTTAGTTGGTGGAGCGAT
TTGTCTGGTTAATTCCGATAACGAACGAGACTCTAGCCTACTAAATAGCCAGTCGATCCTCAGCGTC
GACTGTACATATAATAGCTTCTTAGAGGGACAAGCGGCGTATAGTCGCACGAGATTGAGCAATAACA
GGTCTGTGATGCCCTTAGATGTCCGGGGCCGCACGCGCGCTACACTGAAGAGATCAGCGTGTCTATT
ATAAAAAACCTGGGCCGAAAGGCTTGGGCAATCCGTTGAAACCTCTTCGTGATTGGGATTGAGCTTT
GTAATTATCGCTCATGAACGAGGAATCCCAGTAAGCGCGTGTATAAGCACGCGTTGATTACGTCC
CTGCCCTTTGTACACACCGCCGTCGCTACTACCGATTGAATGATTTAGTGAGGCCATCGGATCGGT
CATCGTGGCTGTGCAAGACGGCCACGAATGATTGAGAAGATGACCAAACCTGGCTCATTTAGAGGAA
GTAAAAGTCGTAACAAGGTTTCCGT

Milnesium pacificum sp. nov. MW 28s rDNA LC511089

TACTAAGCGGAGGAAAAGAAACCAACGGGGATTCTCCTAGTAACTGCGAGTGAACGAAAAAAGCCC
AGCGCTGAATCCTGTAGCTGGTAACGGTTATGGGAGCTGTAGCGTGAAGAAGGTGTACAACCATTGC
AGTCAATACACGTAAGTCTCCCTGAGTGGAGCTCCATCCAAGGAGGGTGCAAGGCCCGTATCGTGT
TTGACGCGTGATGGTATAGCATCTTCAGAGAGTCGGTTGTTTTGGGATTGCAACCTAAAGCCGGTGG

TAAACTCCATCGAAGGCTAAATATGACCACGAGTCCGATAGCGAACAAAGTACCGTGAGGGAAAATTG
AAAAGCACTTTGAAGAGAGAGCGAAATAGTGCGTGAAACCGCTTAGAGGCAAGCAGATGGGGCCTCG
AAGGTAGAGCAGCGAATTCAGCTTGCATCTCTGCTGGACTACTGTTGGCGTAGAGATCGTAAGACTC
TTGTCAATGTAGGCTGTCATGGTGGAAATGTGAGTGCACCTTCGCTGTTTGTACGCCACCGCTGATAA
ATGTTCTGCATCCGCTGTGGCCTTGTGTGAGGCCTTGAGTGGCTTGCTACTCAAGTAACCTACACTT
GGCTATATACAGCGCGTTTTGCCTTTTATCTGGTCAAGTCACATCCTATGCCGGCATTGCTTTACGGC
GATGCAGTGTAGATGCTAGCGCGTTTTATTGCTACTTCGCATTGCGGTTGACGTGCTTGACGGCTGC
TGCGGCTGGTGGTATACTGCGTTGGATCTACTGGTATAGTGAAATTTGGTGGCGAGTAGACGGCTG
CCCATCTAACCC

Milnesium pacificum sp. nov. MW COI LC511090

GGTCAACAAATCATAAAGATATTGGTATATTATATTTTTATTTTTGGTATTTGATGTGCTTTTGTGG
GTCTGCGTTCAGTGTTTAATTCGGTTGGAACCTTTCACAGCCTAATACTATATTGATAAGAGAAGAA
TTGTATAATGCATTTATTACTAGTCATGCTTTAGTTATGATTTTTTTTTTTTGTATACCTGTCTTGA
TTGGTGGGTTTGGGAATTGATTAGTGCCTTTAATAATTGGTTCACCTGATATGGCTTTTCCTCGGGT
TAATAATGCAAGATTTTGAATTGTTAGTATGTTCTTTTATTTTTATAATATTTAGTATACTTATTGGT
GATGGTGTAGGTGCTGGTTGAACTTTATATCCTCCTTTAACTGGTATTTTTGGTCATACTTCTACTT
CAGTTGATTATGCTATTTTTGTCTCTTCATATAGCTGGTATTTCTTCTATTTTTTAGTGGTATTAATTT
TATAACAAC TATTATAAATATGCATTATTTTTGGAGTTCGAATAGATAAATTGCCATTATTTGTTTGA
TCGATTTTTATTACTGCTATTTTTATTGGTTGTTTTCAATTGCCGGTTCCTGCAGGTGCTATTACAATAT
TAATTAGTGATCGTCTTTTTTAGAACATCTTTTTTTGATCCTGCTGGTGGTGGAGATCCTATTTTTATT
TCAACATTTATTTTTGATTTTTTTGGTCACCCTGAAGTTTA

Milnesium pacificum sp. nov. MW ITS-2 LC511091

AAAATGCGAGACGAAACGTGAATTGCAGGACTTTATGAACGTTGTTTCTTCGAACGCAAATTGCGGC
TATGGGTTGACCGTAGCCACGTCTGGTTGAGGGTCAAACGCAAAAAAACAATGACAGCCATGTGTAC
GTTGTTGTGCGATTGTCTGTCTATCCTCTACTGACCATCTAGTGCCAGATTACGGCTGACAGATGAAGT
ATTAACCCTATGATGAGCGTATTTTTCGAACTGTAGCGAATCGAAAGCCGATACGCGTACGCGTGTA
TGTATGTGTATACTGGGCTATGTGTGTTGACAGTAGGTTGGAGTCGCTGATAGGCTCTCTACCGTGT
TTAGCTAGCAATGCATGCGACAGTTATGCATATAGCCGGCTACATGAGTGTAGATGCTTGACCAACT
GAACGACAGCCCGTTTAAAAGTATACTTCCGCGCGTTTCTGAGCGTGTACAGCTTTGAGTTACAGGA
TCGATGCGCTGAATTGTATAGGCGCATAAGCAAGTGCTTTACTCATTACGTTGACCTCAGCTCAGG
CGAGATTACCCGCTGAACTTAA

Milnesium pacificum sp. nov. OGA7 18s rDNA LC511092

ATGCATGTCTAAGTACTTGCTTTAACAAGGCGAAACCGCGAATGGCTCATTAAATCAGTTATGGTTC

ACTAGATCGTATCAATCCTACATGGATAACTGTGGTAATTCTAGAGCTAATACATGCAATGAAGCCG
TCTGGCCTTGTGTTCAGCGGCGCAGTTATTAGATTA AAAACCAATATAGGCTTTCGGGTCTATTAACCTT
GTGATGAATCTGAATAACCGAAGCAGAGCGCATGGTCTCGTACCGGCGCCAGATCTTTC AAGTGTCT
GATCTATCAGCTTGTTCGCTAGGTTATGTTTCTAGCGTGGCTTCGACGGGTAAACGGGGTATCAGGGTC
CGATACCGGAGAGGGAGCCTGAGAAATGGCTACCACATCCAAGGAAGGCAGCAGGCGCGCAAATTAC
CCACTCCCAGCTCGGGGAGGTAGTGACGAAAAATAACGATGCGGGAGCATAATGCTTCCCCTAATCG
GAATGAGTACACTTTAAATCCTTTAACGAGGATCAATTGGAGGGCAAGTCTGGTGCCAGCAGCCGCG
GTAATTCCAGCTCCAATAGCGTATATTAAGTTGCTGCGGTTAAAAAGCTCGTAGTTGGATCTGGGT
GCTTCGATGAGTGGTGCATCTATTCGATGTCTACTACTCCATCGACACCACAAGCCAACCATGTCTCT
TCTATGCCCTTCACTGGGCGTAGATAATGGGCGGTTGGAACGTTTACTTTGAAAAAATTAGAGTGCT
CAAAGCAGGCGTATGGCCTTGAATAATGGTGCATGGAATAATGGAATAGGACCTCGGTTCTATTTGT
TGGTTTTCAAGAGCTCGAGGTAATGATAAAGAGGAACAGACGGGGGCATTTCGTATTGCGACGTTAGA
GGTGAAATTCCTGGATCGTCGCAAGACGAACTACTGCGAAAGCATTGCGCAAGAATGTTTTTCATTAA
TCAAGAACGAAAGTTAGAGGTTGCAAGGCGATCAGATACCGCCCTAGTTCTAACCATAAACGATGCC
AACCAGCGATCTGTCCGTGTTTATTTAACGACTCGACAGGCAGCTTCCGGGAAACCAAAGTGCTTAG
GTTCCGGGGGAAGTATGGTTGCAAAGCTGAAACTTAAAGGAATTGACGGAAGGGCACCACCAGGAGT
GGAGCCTGCGGCTTAATTTGACTCAACACGGGAAAACTCACCCGGCCCGGACACTGTAAGGATTGAC
AGATTGAGAGCTCTTCTTGATTCCGTGGGTGGTGGTGCATGGCCGTTCTTAGTTGGTGGAGCGATT
TGTCTGGTTAATTCCGATAACGAACGAGACTCTAGCCTACTAAATAGCCAGTCGATCCTCAGCGTCG
ACTGTACATATAATAGCTTCTTAGAGGGACAAGCGGCGTATAGTCGCACGAGATTGAGCAATAACAG
GTCTGTGATGCCCTTAGATGTCCGGGGCCGCACGCGCGCTACACTGAAGAGATCAGCGTGTCTATTA
TAAAAAACCTGGGCCGAAAGGCTTGGGCAATCCGTTGAAACCTCTTCGTGATTGGGATTGAGCTTTG
TAATTATCGCTCATGAACGAGGAATCCCAGTAAGCGCGTGTGCATAAGCACGCGTTGATTACGTCCC
TGCCCTTTGTACACACCGCCCGTTCGCTACTACCGATTGAATGATTTAGTGAGGCCATCGGATCGGTC
ATCGTGGCTGTTCGCAAGACGGCCACGAATGATTGAGAAGATGACCAAACCTGGCTCATTTAGAGGAAG
TAAAAGTCGTAACAAGGTTTCCGT

Milnesium pacificum sp. nov. OGA7 28s rDNA LC511093

TACTAAGCGGAGGAAAAGAAACCAACGGGGATTCTCCTAGTAACTGCAAGTGAACGGAGAAAAGCCC
AGCGCTGAATCCTGTGGCTGGTAACGGTTATGGGAGCTGTAGCGTGAAGAAGGTGTACAACCATTGC
AGTCAATACACGTAAGTCTCCCTGAGTGGAGCTCCATCCCAAGGAGGGTGCAAGGCCCGTATCGTGT
TTGACGCGTGATGGTATAGCATCTTCAGAGAGTCCGGTTGTTTGGGATTGCAACCTAAAGCCGGTGG
TAAACTCCATCGAAGGCTAAATATGACCACGAGTCCGATAGCGAACAAGTACCGTGAGGGAAAATTG
AAAAGCACTTTGAAGAGAGAGCGAAATAGTGCGTGAACCCGCTTAGAGGCAAGCAGATGGGGCCTCG
AAGGTAGAGCAGCGAATTCAGCTTGCATCTCTGCTGGACTACTGTTGGCGTAGAGATCGTAAGACTC
TTGTCAATGTAGGCTGTGATGGTGAATGTGAGTGCACCTTCGCTGTTTGTACGCCACCGCTGATAA

ATGTTCTGCATCCGCTGTGGCCTTGTGTGAGGCCTTGAGTGGCTTGCTACTCAAGTAACCTACACTT
GGCTATATACAGCGCGTTTTGCTTTTTATCTGGTCAAGTCACATCCTATGCCGGCATTGCTTTACGGC
GATGCAGTGTAGATGCTAGCGTGTATTGCTACTTCGCATTGCGGTTGACGTGCTTGACCGGCTGC
TGCGGCTGGTGGTATACTGCGTTGGATCTACTGGTATAGTGTAGATTTGGTGGCGAGTAGACGGCTG
CCCATCTAACCC

Milnesium pacificum sp. nov. OGA7 COI LC511094

GGTCAACAAATCATAAAGATATTGGTATGTTATATTTTTATTTTTGGTATTTGATGTGCTTTTGTGG
GTCTGCGTTCAGTGTTTAATTCGGTTAGAACTTTCACAGCCTAATACTATATTAATAAGAGAAGAA
TTGTATAATGCATTTATTACTAGTCATGCTTTAATTATGATTTTTTTTTTTTGTGCATACCTGTCTTGA
TTGGTGGGTTTGGAAATTGATTAGTGCCTTTAATAATTGGTTCACCTGATATGGCTTTTCCTCGGGT
TAATAATGCAAGATTTTGGTTGTTAGTATGTTCTTTTGTTTTTATAATATTTAGTATGCTTATTGGT
GATGGTGTAGGTGCTGGTTGGACTTTATAACCCTCCTTTAACTGGTATTTTTGGTCATACTTCTACTT
CGGTTGATTATGCTATTTTTGTCTCTTCATATAGCTGGTATTTCTTCTATTTTTTAGTGGTATTAATTT
TATAACAAC TATTATAAATATGCATTATTTTGGAGTTCGAATAGATAAATTGCCATTATTTGTTTGA
TCGATTTTTATTACTGCTATTTTTATTGGTTGTTTTCGTTGCCGGTCTTGCAGGTGCTATTACAATAT
TAATTAGTGATCGTCTTTTTAGAACATCTTTTTTTGATCCTGCTGGTGGTGGAGATCCTATTTTTATT
TCAACATTTATTTTTGATTTTTTGGTCCACCTGAAGTTTA

Milnesium pacificum sp. nov. OGA7 ITS-2 LC511095

AAAATGCGAGACGAAACGTGAATTGCAGGACTTTATGAACGTTGTTTCTTCGAACGCAAATTGCGGC
TATGGGTTGACCGTAGCCACGTCTGGTTGAGGGTCAAACGCAAAAAAACATGACAGCCATGTGTAC
GTTGCTGTGATTGTCTGTCTATCCTCTACTGACCATCTAGTGCCAGATTACGGCTGACAGATGAAGT
ATTAACCCTATGATGAGCGTATTTTTCGAACTGTAGCGAATCGAAAGCCGATACGCGTACGCGTGTA
TGTATGTGTATACTGGGCTATGTGTTGACAGTAGGTTGGAGTCGCTGATAGGCCCTCTACCGTGTTT
AGCTAGCAATGCATGCGACAGTTATGCATATAGCCGGCTACATGAGTGTAGATGCTTGACCAACTGA
ACGACAGCCCGTTTTAAAAGTATACTTCCGCGCGTTTTCTGAGCGTGTACAGCTTTGAGTTACAGGATC
GATGCGCTGAATTGTCATAGGCGCGTAAGCAAGTGCTTTACTCATTACGTTGACCTCAGCTCAGGCG
AGATTACCCGCTGAACTTAA

Milnesium pacificum sp. nov. i30 COI LC511096

GTATATTATATTTTTATTTTTGGTATTTGATGTGCTTTTGTGGGTCTGCGTTCAGTGTTTTAATTCC
GTTGGAAC TTTACAGCCTAATACTATATTAATAAGAGAAGAATTGTATAATGCATTTATTACTAGT
CATGCTTTAGTTATGATTTTTTTTTTTTTTGTGCATACCTGTTTTGATTGGTGGGTTTGGGAATTGATTAG
TGCCTTTAATAATTGGTTCACCTGATATGGCTTTTCCTCGGGTTAATAATGCAAGATTTTGGTTGTT
AGTATGCTCTTTTTATTTTTATAATATTTAGTATACTTATTGGTGTAGGTGCTGGTTGAACT

TTATATCCTCCTTTAACTGGTATTTTTGGTCATACTTCTACTTCGGTTGATTATGCTATTTTTGTCTC
TTCATATAGCTGGTATTTCTTCTATTTTTAGTGGTATTAATTTTTATAACAACACTATTATAAATATGCA
TTATTTTTGGAGTTCGAATAGATAAATTGTCATTATTTGTTTGATCGATTTTTATTACTGCTATTTTA
TTGGTTGTTTCGTTGCCGGTCTTGCAGGTGCTATTACAATATTAATTAGTGATCGTCTTTTTTAGAA
CATCTTTTTTTGATCCTGCTGGTGGTGGAGATCCTATTTTTATTTCAACATTTATTT

Milnesium pacificum sp. nov. i30 ITS-2 LC511097

AAAAATGCGAGACGAAACGTGAATTGCAGGACTTTATGAACGTTGTTTCTTCGAACGCAAATTGCGGC
TATGGGTTGACCGTAGCCACGTCTGGTTGAGGGTCAAACGCAAAAAAACATGACAGCCATATGTAC
GTTGCTGTTCGATTGTCTGTCTCCTCTACTGACCATCTAGTGCCAGATTACGGCTGACAGATGAAGT
ATTAACCCTATGATGAGCGTATTTTTCGAACTGTAGCGAATCGAAAGCCGATACGCGTACGCGTGTA
TGTATGTGTATACTGGGCTATGTGTTGACAGTAGGTTGGAGTCGCTGATAGGCTCTCTACCGTGT
AGCTAGCAATGCATGCGACAGTTATGCATATAGCCGGCTACATGAGTGTAGATGCTTGACCAACTGA
ACGACAGCCCGTTTTAAAAGTATACTTCCGCGCGTTTTCTGAGCGTGTACAGCTTTGAGTTACAGGATC
GATGCGCTGAATTGTCATAGGCGCGTAAGCAAGTGTTTACTCATTACGTTGACCTCAGCTCAGGCG
AGATTACCCGCTGAACTTAA

Milnesium tardigradum OTM 18s rDNA LC511098

GNGAAAACCCGCGAATGGCTCATTAATCAGTTATGGTTCACTAGATCGTATCAATCCTACATGGAT
AACTGTGGTAATTCTAGAGCTAATACATGCAATGAAGCCGTCTGGCCTTGTGTCAGCGGCGCAGTTA
TTAGATTTAAAACCAATATAGGCTTTCCGGTCTATTAACCTGTGATGAATCTGAATAACCGAAGCAGA
GCGCATGGTCTCGTACCCGGCGCCAGATCTTTCAAGTGTCTGATCTATCAGCTTGTGCTAGGTTATG
TTCCTAGCGTGGCTTCGACGGGTAACGGGGTATCAGGGTCCGATACCCGAGAGGGAGCCTGAGAAAT
GGCTACCACATCCAAGGAAGGCAGCAGGCGCGCAAATACCCTCCAGCTCGGGGAGGTAGTGAC
GAAAAATAACGATGCGGGAGCATAATGCTTCCCGTAATCGGAATGAGTACACTTTAAATCCTTTAAC
GAGGATCAATTGGAGGGCAAGTCTGGTGCCAGCAGCCGCGTAATTCCAGCTCCAATAGCGTATATT
AAAGTTGCTGCGGTTAAAAAGCTCGTAGTTGGATCTGGGTGCTTCGATGAGTGGTGCATCTATTGCA
TGTCTACTACTCCATCGACACCACAAGCCAACCATGTCCTTCTATGCCCTTCACTGGGCGTAGATAA
TGGGCGGTTGGAACGTTTACTTTGAAAAAATTAGAGTGCTCAAAGCAGGCGTATGGCCTTGAATAAT
GGTGCATGGAATAATGGAATAGGACCTCGGTTCTATTTGTTGGTTTTCAAGAGCTCGAGGTAATGAT
AAAGAGGAACAGACGGGGGCATTCGTATTGCGACGTTAGAGGTGAAATTCCTGGATCGTCGCAAGAC
GAACTACTGCGAAAGCATTTGCCAAGAAGTTTTCATTAATCAAGAACGAAAGTTAGAGGTTGCAAGG
CGATCAGATAACCGCCCTAGTTCTAACCATAAACGATGCCAACCAGCGATCTGTGCGTGTATTATTCTA
ACGACTCGACAGGCGCTTCCGGGAAACCAAAGTGTCTTAGGTTCCGGGGGAAGTATGGTTGCAAAGC
TGAAACTTAAAGGAATTGACGGAAGGGCACCACCAGGAGTGAGCCTGCGGCTTAATTTGACTCAAC
ACGGGAAAACCTCACCCGGCCCGGACACTGTAAGGATTGACAGATTGAGAGCTCTTCTTGATTCCGGT

GGGTGGTGGTGCATGGCCGTTCTTAGTTGGTGGAGCGATTTGTCTGGTTAATTCCGATAACGAACGA
GACTCTAGCCTACTAAATAG

Milnesium tardigradum OTM 28s rDNA LC511099

AAGCGGAGGAAAAGAAAACCAACGGGGATTCTCCTAGTAACTGCGAGTGAACGGAGAAAAGCCCAGCG
CTGAATCCTATGGCTGGTAACGGTCATGGGAGCTGTAGCGTGAAGAAGGTGTACAACCATTGCAGTC
AATACACGTAAGTCTCCCTGAGTGGAGCTCCATCCCAAGGAGGGTGCAAGGCCGTATCGTGTTTGA
CGCGTCGATGGTATAGCATCTTCAGAGAGTCGGGTTGTTTGGGATTGCAACCTAAAGCCGGTGGTAA
ACTCCATCGAAGGCTAAATATGACCACGAGTCCGATAGCGAACAAGTACCGTGAGGGAAAATTGAAA
AGCACTTTGAAGAGAGAGCGAAATAGTGCCTGAAACCGCTTAGAGGCAAGCAGATGGGGCCTCGAAG
GTTGAGCAGCGAATTCAGCTTGCATCTTCTGCCAGACCCTGTCCGGCTAGAGATCGTAAGACTCTT
GCCGATGTGGGGCTGTCTTGGCGGAATGTGAGTGCACTTTCGCTGTTTGTACGCCACCGCTGTTAAA
TGTGTGCATCCGCTGTGGCGTTGTGTGAGGCCTTGAGTGGCTTGCTGCTCAAGTAACCTACACTTGG
CCATATAACAGCGCGCTTGCCTTTTAACCAGTCAGGTCATACCTATGCTGGCACTCTTTCGGGAGTGC
AGTGTAAGTGCTGGCGTGTGTTCGCCGCTTAGTGCCAGTCGACGTGCTTGACGGCTTCAGCCGCT
GGTGGTACACTGCGTCCGCCTTACTGGCGTAGCGTAGATTTGGTGGCGAGTAGATGGCAG

Milnesium tardigradum OTM COI LC511100

TTATCTCAACCTAACACAATATTAATGAGTGAGGATATTTATAATGCATTTATTACAAGTCATGCAT
TGGTTATGATTTTTTTTTTTTGTGCATACCTGTTTTAAATTGGGGTTTTTGGGAATTGGTTAGTACCTTT
AATAATTAGTTCGCCAGATATGGCCTTTCCCCGAGTAAACAATGTGAGGTTTTGATTATTAGTTGCT
TCATTCATATTATTAGTGTATAGAATATTTTGTGGAGAAGGTGTTGGAGCTGGTTGAACTCTTTATC
CCCCTTTAACTAATATTTATGGTCATAGAAGAATTGCGGTAGACTATGCAATTTTATCTTTGCACAT
TGCTGGTGCTTCTTCTATTTTTAGGGCTATAAATTTTTTAACTACTATTTTTAATATACATTATTTT
GGAGTTCGTATGGATAAGTTGCCGCTGTTTGTGTTGATCAATTTTTATTACAGCCTTATTATTGGTTT
TAGCTTTACCTGTGTTGGCTGGAGCTATTACTATGTTAAT

Milnesium tardigradum OTM ITS-2 LC511101

GACGAAACGTGAATTGCAGGACTTTATGAACGTTGTTTCTTCGAACGCAAATGCGGCTATGGGTTG
ACCGTAGCCACGTCTGGTTGAGGGTCAAACGAAAATAAACCTGATAGCTACGTGTTTGCTATCGATT
GTTTGTCAATTCTCTACTGGCCTGCTTCTGTCTCTCAGAGCAGAGCCAGGTTAAGGCTGACAGATGA
AGTTTCGACCCTATGGCGAGCGTGCTTCTTGATCTGTAGCGGATCGGAAGCCGACGCGTATCCATAC
ATTTTGTGTACAAAGGACTGTATGATGAAAGTAGGTTGGCGGTCGCTGATGGGCGCTCTATTATCGC
TTAGCTAGCAGTGCATGCGGCAGTTGTGCACAGATTGCTAACGGTGTGTTGGGAGACGCTTGGCTAAC

CGAACGACAGTCCATTTTCCTTGTACACAATGGGTATTGGAGCCATACGCGCTTCGGCTTTGAGTAC
AGATATCAGTACGCTGAATTGTCATAGGTTGTAGACTGTATGCGTGCTTAACGCGTTACACACTCAT
TACGTTGACCTCAGCTCAGGCGAGATTACCCGCTGAACTTAAGCATATCAATAAGCGGAGGAA

Milnesium tardigradum KNY 28s rDNA LC511102

AATTTACATTTACTAAGCGGAGGAAAAGAAACCAACGGGGATTCTCCTAGTAACTGCGAGTGAACGG
AGAAAAGCCCAGCGCTGAATCCTATGGCTGGTAAACGGTCATGGGAGCTGTAGCGTGAAGAAGGTGTA
CAACCATTGCAGTCAATACACGTAAGTCTCCCTGAGTGGAGCTCCATCCAAGGAGGGTGCAAGGCC
CGTATCGTGTTTGACGCGTCGATGGTATAGCATCTTCAGAGAGTCGGGTTGTTTGGGATTGCAACCT
AAAGCCGGTGGTAAACTCCATCGAAGGCTAAATATGACCACGAGTCCGATAGCGAACAAGTACCGTG
AGGGAAAATTGAAAAGCACTTTGAAGAGAGAGCGAAATAGTGCGTGAAACCGCTTAGAGGCAAGCAG
ATGGGGCCTCGAAGGTTGAGCAGCGAATTCAGCTTGCATCTTCTGCCAGACCACTGTCGGCGTAGAG
ATCGTAAGACTCTTGCCGATGTGGGGCTGTCTTGGCGGAATGTGAGTGCACCTTCGCTGTTTGTACG
CCACCGCTGTTAAATGTGTGCATCCGCTGTGGCGTTGTGTGAGGCCTTGAGTGGCTTGCTGCTCAAG
TAACCTACACTTGGCCATATACAGCGCGCTTGCCTTTTAACCAGTCAGGTCATACCTATGCTGGCAC
TCTTTCGGGAGTGCAGTGTAAAGTGTGGCGTGTGTTGTCGCCGCTTAGTGGCAGTCGACGTGCTTGCA
CGGCTTCAGCCGCTGGTGGTACACTGCGTCGGCCTTACTGGCGTAGCGTAGATTTGGTGGCGAGTAG
ATGGCAGCCCATC

Milnesium tardigradum KNY COI LC511103

TTATCTCAACCTAATAACAATACTGATGAGTGAGGATATTTATAATGCATTTATTACGAGTCATGCAT
TAGTGATAATTTTTTTTTTTTGTATGCCTGTTTTAAATTGGGGGTTTTGGGAATTGGTTAGTACCTTT
AATAATTAGTTCGCCAGATATGGCCTTTCCCCGAGTAAATAATGTGAGGTTTTGATTGTTAGTTGCT
TCATTTATATTATTAGTGTATAGAATGTTTTGTGGAGAAGGTGTTGGAGCTGGTTGAACTCTTTATC
CCCCTTTAACTAATATTTATGGTCATAGAAGAACTGCGGTAGATTACGCAATCTTATCTTTGCATAT
TGCTGGTGTCTTCTTCTATTTTTAGGGCTATAAATTTTTTAACTACTATTTTTAATATACATTATTTT
GGAGTTCGTATAGATAAATTGCCGTTGTTTGTGTTGATCAATTTTTATTACAGCTTTATTGTTGGTTT
TAGCTTTACCGGTGTTGGCTGGAGCTATTACTATACTAAT

Milnesium tardigradum KNY ITS-2 LC511104

AACGAAAATAAACCTGATAGCTACGTGTTTGTCTATCGATTGTTTGTCACTTCTCTACTGGCCTGCTTC
TGTCTCTCAGAGCAGAGCCAGGTTAAGGCTGACAGATGAAGTTTCGACCCTATGGCGAGCGTGCTT
CTTGATCTGTAGCGGATCGGAAGCCGACGCGTATCCATACATTTTGTGTACAAAGGACTGTATGATG
AAAGTAGGTTGGCGGTGCTGATGGGCGCTCTATTATCGCTTAGCTAGCAGTGCATGCGGCAGTTGT
GCACAGATTGCTAACGGTGTGTTGGGAGACGCTTGCTAACCGAACGACAGTCCATTTTCCTTGTACA
CAATGGGTATTGGAGCCATACGCGCTTCGGCTTTGAGTACAGATATCAGTACGCTGAATTGTCATAG

GTTGTAGACTGTATGCGTGCTTAACGCGTTACACACTCATTACGTTGACCTCAGCTCAGGCGAGATT
ACCGCTGAACTTAA

Supplementary Text S1-1. Morphometrical data of *M. pacificum* sp. nov. and *M. tardigradum* : *M. pacificum* (µm).

	OGA01	OGA02	OGA03	OGA04	OGA05	OGA06	OGA07	OGA08	OGA09	OGA10	OGA11	OGA12	MW01	MW02	MW03	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW11	MW12	
Body length	294	464	309	364	593	465	580	501	815	763	853	296	371				369	456	640	728	795	493	314	377	
Peribuccal papillae length	5.1	6.4	4.2	3.8	7.1	6.9		5.5	9.5	9.1	8.9	4.6	5.1	6.1	3.1		4.5	6.4		8.8	10.9				5.2
Lateral papillae length	2.9	3.7	3.9	4.1	5.0	4.7		5.6	4.6	6.4	8.3	3.1	3.0				3.7	4.9		4.6					3.8
Buccal tube																									
Length	24.2	31.6	25.4	23.9	40.9	33.1	38.8	33.7	42.3	50.0	46.0	23.7	26.0	23.0	24.0		26.6	30.3	36.8	43.8	44.8			26.6	25.1
Stylet support	16.5	20.2	17.6	16.5	23.9	19.4	24.3	20.8	27.7	28.6	31.2	14.6	17.4	15.5	15.9		18.2	19.3	23.7	26.3	27.7			17.5	17.4
Anterior width	9.7	12.5	8.4	8.5	14.8	12.8	14.8	13.1	17.9	19.5	18.6	7.3	8.3	8.1	8.2		9.4	11.4	17.2	16.4	18.5			8.5	8.1
Posterior width	7.6	12.4	7.5	5.9	12.2	10.8	14.0	12.8	16.4	17.9	18.9	7.1	6.9	6.8	7.9		7.2	8.1	15.5	16.3	15.4			6.6	8.5
Standard width	8.6	12.5	8.0	7.2	13.5	11.8	14.4	12.9	17.1	18.7	18.8	7.2	7.6	7.4	8.0		8.3	9.8	16.3	16.4	16.9			7.6	8.3
Standard/length	35.8	39.4	31.3	30.1	33.0	35.5	37.2	38.3	40.6	37.4	40.8	30.4	29.1	32.3	33.5		31.4	32.2	44.3	37.4	37.8			28.5	33.0
Posterior/anterior	79.1	99.3	89.4	69.5	82.5	84.4	94.6	97.7	91.6	92.0	101.5	98.2	83.7	83.8	95.5		76.7	71.6	90.1	99.0	83.2			78.0	104.7
Claw1																									
External primary branch		18.7	11.4	14.0	20.1	18.2	15.2	12.8	21.2	21.1	23.5		11.4	11.3	9.8		13.1	15.1	19.5	22.9	27.9			10.4	11.3
External base + secondary branch	9.2	11.2	11.5	12.7	18.7	11.4	11.4	13.7	15.0	19.6	14.4		9.7	12.3	8.1		9.9	7.9	16.6	20.1	18.8	12.0		9.6	7.4
External spur																									
Internal primary branch		14.5	10.0	14.1	15.7	16.6	14.7	12.7	19.5	17.2	22.1		10.1	6.3	10.9		11.6	12.6	16.5	18.6	21.0	19.2		9.2	10.8
Internal base + secondary branch	5.7	11.2	9.5		11.7	11.6	13.3	14.7	19.4	17.2	19.3	5.9	9.5	8.4	8.6		10.5	11.9	17.6	19.3	20.8	12.7		8.6	8.5
Internal spur		2.4			4.0	3.8	3.4			4.8	4.1									4.3	3.9				
Basal thickening width	1.6	3.1	1.6	2.9	3.3	2.3	3.2	2.2	2.8	3.2	5.3	1.6	1.9	2.3	1.9		2.3	2.4	2.7	4.5	4.6	3.4		2.2	2.2
Claw2																									
External primary branch	9.9	14.1	7.7	12.5	18.0	14.8	20.4	17.8	18.3	18.4	23.8	7.0	14.4	9.9	9.8		11.6	16.2	20.4	23.3	22.9	18.0		15.4	14.2
External base + secondary branch	9.6	15.6	8.2	11.2	17.9	14.6	16.0	12.5	16.8	17.8	18.3	7.0	12.1	7.9	10.8		9.2	10.7	16.0	26.7	19.3	11.1		11.1	9.4
External spur																									
Internal primary branch		14.7	7.8	15.7	17.5	16.1	17.8	17.9	23.1	24.5	20.4	7.8	10.6	11.0	9.1		11.7	11.6	19.0	22.3	26.7	17.5		10.6	10.0
Internal base + secondary branch	7.5	14.3	6.2	9.5	13.8	11.3	14.4	14.2	16.2	18.5	14.9	8.1	9.5	8.8	8.8		8.3	13.8	17.5	19.3	20.4	15.6		8.3	8.8
Internal spur		3.2			4.3	4.0	4.2	3.4	3.9	4.9	3.6								1.8	3.8	4.3	3.2	2.9		
Basal thickening width	1.8	3.1	1.6	2.6	3.3	2.6	4.4	3.7	3.9	4.3	2.5	1.7	2.6	2.0	1.9		2.3	2.5	2.5	3.1	3.9	3.2		2.1	1.8
Claw3																									
External primary branch	12.9	15.3	9.9	15.9	18.2	14.8	20.2	16.1	23.4	20.1	27.7	9.3	12.6	14.2			14.9	18.8	21.1	28.2	23.2	18.0		15.4	12.9
External base + secondary branch	9.6	11.7	8.0	10.3	17.0	12.1	15.3	11.2	17.1	17.3	19.4	7.5	9.4	8.4	7.1		11.5	9.2	20.5	23.0	19.3	13.3		11.9	11.6
External spur																									
Internal primary branch	12.0	14.4	9.2	11.5	17.2	16.9	16.4	16.6	21.7	23.3	23.0	7.4	10.9	10.3			14.1	14.7	19.4	25.3	21.3	15.7		11.0	14.6
Internal base + secondary branch	9.3	13.5	6.8	9.0	19.3	12.5	15.3	12.7	21.7	19.1	20.4	7.7	11.1	8.8	9.2		10.6	13.4	15.9	20.5	18.3	11.4		11.2	11.1
Internal spur		3.0			4.0	4.6	3.3	4.1		5.7	3.7								2.3	4.2	5.4	3.4		2.3	
Basal thickening width	1.8	1.6	2.2	1.7	3.2	2.2	4.3	3.8	4.1	4.4	3.6	2.1	2.3	2.1	1.9		2.5	2.6	2.2	2.6	4.2	2.8		2.5	2.0
Claw4																									
Anterior primary branch	9.7	15.7	10.7	12.0	21.9	18.6	19.2	15.0	25.5	20.8	25.0	11.0	12.9		10.7		11.3	20.0	22.7	23.5	21.7	15.5		13.1	12.4
Anterior base + secondary branch	8.2	17.6	8.0	9.5	16.0	12.9	16.2	15.9	19.2	16.4	21.3	6.6	9.1	8.8	9.3		9.1	10.1	15.3	21.3	22.2	11.3		8.8	12.4
Anterior spur		5.0			4.0	3.1	3.7	4.2	5.8	5.8	2.6								1.4	3.7	4.8	4.0		3.9	
Posterior primary branch	11.6	14.9	10.3	12.3	24.5	21.4	19.6	15.3	25.8	20.5	27.8		12.7		12.4		12.7	16.5	23.1	29.2	17.2	16.5		15.8	14.1
Posterior base + secondary branch	8.4	12.5	8.3	9.7	18.6	17.2	20.2	18.6	22.5	19.6	23.5	6.7	11.1	9.0	8.7		8.4	10.2	12.5	20.5	22.1	11.2		9.9	9.6
Posterior spur																									
Basal thickening width	1.5	3.1	1.7	2.2	3.5	2.9	3.0	2.5	4.3	4.4	5.0	2.3	2.0	2.3	2.8		2.3	3.0	2.4	3.5	4.9	2.9		1.9	2.7
Hatchling(H)/Juvenile(J)/Adult(A)	H	J	H	H	A	J	A	A	A	A	A	H	H	H	H	A	H	J	A	A	A	J	H	H	H

Supplementary Text S1-2. Morphometrical data of *M. pacificum* sp. nov. and *M. tardigradum* : *M. pacificum* (pt).

	OGA01	OGA02	OGA03	OGA04	OGA05	OGA06	OGA07	OGA08	OGA09	OGA10	OGA11	OGA12	MW01	MW02	MW03	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW11	MW12	
Body length	1217	1466	1216	1524	1450	1403	1496	1485	1929	1524	1856	1249	1425				1390	1507	1741	1663	1776		1181	1503	
Peribuccal papillae length	20.9	20.3	16.4	15.8	17.3	20.7		16.3	22.4	18.2	19.4	19.5	19.7	26.7	12.8			16.8	21.1	20.2	24.4			20.8	
Lateral papillae length	12.1	11.7	15.4	17.1	12.3	14.2		16.6	10.8	12.8	18.0	13.2	11.7				14.0	16.2		10.6				15.2	
Buccal tube																									
Length	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Stylet support	68.2	63.9	69.1	69.2	58.3	58.7	62.7	61.8	65.5	57.1	67.8	61.5	66.6	67.7	66.0	70.0	68.3	63.8	64.4	60.1	61.9			65.8	69.4
Anterior width	39.9	39.5	33.0	35.5	36.1	38.5	38.2	38.7	42.3	39.0	40.5	30.7	31.7	35.2	34.2	34.2	35.5	37.6	46.6	37.6	41.3			32.0	32.2
Posterior width	31.6	39.2	29.5	24.7	29.8	32.5	36.2	37.8	38.8	35.9	41.1	30.1	26.5	29.5	32.7	28.2	27.2	26.9	42.0	37.2	34.3			25.0	33.7
Standard width	35.8	39.4	31.3	30.1	33.0	35.5	37.2	38.3	40.6	37.4	40.8	30.4	29.1	32.3	33.5	31.2	31.4	32.2	44.3	37.4	37.8			28.5	33.0
Claw1																									
External primary branch		59.1	44.7	58.8	49.2	55.1	39.2	38.1	50.1	42.1	51.1		43.9	49.3	40.7	38.0	49.2	49.8	53.1	52.4	62.2			39.2	45.0
External base + secondary branch	38.0	35.5	45.0	53.2	45.8	34.5	29.3	40.7	35.4	39.2	31.3		37.3	53.3	33.6	24.8	37.3	26.1	45.2	45.8	42.0			36.2	29.6
External spur																									
Internal primary branch		45.8	39.5	59.0	38.5	50.2	37.9	37.7	46.1	34.4	48.1		38.8	27.6	45.2	39.1	43.8	41.5	45.0	42.5	47.0			34.5	43.2
Internal base + secondary branch	23.7	35.5	37.4		28.6	35.1	34.3	43.5	46.0	34.3	42.0	25.0	36.4	36.7	35.8	31.4	39.5	39.2	47.9	44.1	46.5			32.4	34.0
Internal spur		7.6			9.8	11.5	8.8			9.5	9.0							5.3	11.7		8.8				
Basal thickening width	6.7	9.9	6.1	12.0	8.0	6.8	8.4	6.6	6.7	6.3	11.5	6.9	7.2	10.1	8.1	6.0	8.6	7.9	7.5	10.3	10.3			8.1	8.7
Claw2																									
External primary branch	41.0	44.6	30.4	52.1	44.1	44.5	52.7	52.7	43.4	36.8	51.7	29.6	55.2	43.3	40.6		43.6	53.7	55.6	53.3	51.2			57.9	56.5
External base + secondary branch	39.6	49.2	32.3	47.1	43.6	43.9	41.3	37.1	39.7	35.5	39.8	29.7	46.3	34.3	44.8		34.7	35.2	43.5	61.1	43.1			41.9	37.6
External spur																									
Internal primary branch	20.4	46.6	30.5	65.8	42.8	48.6	45.8	53.0	54.7	49.0	44.3	32.9	40.5	48.0	37.9		43.9	38.4	51.5	50.9	59.6			40.0	39.8
Internal base + secondary branch	31.1	45.1	24.4	39.8	33.7	34.2	37.2	42.1	38.4	36.9	32.4	34.3	36.5	38.3	36.5		31.2	45.6	47.7	44.1	45.5			31.2	35.2
Internal spur		10.3			10.5	12.2	10.9	10.2	9.3	9.8	7.8							6.0	10.2	9.8	7.1				
Basal thickening width	7.3	9.8	6.5	10.8	8.1	8.0	11.3	10.9	9.2	8.6	5.3	7.1	10.0	8.7	8.1		8.6	8.1	6.9	7.1	8.7			7.9	7.3
Claw3																									
External primary branch	53.2	48.5	39.0	66.7	44.5	44.6	52.1	47.7	55.5	40.1	60.2	39.3	48.3	61.6			56.1	62.2	57.5	64.5	51.7			57.8	51.2
External base + secondary branch	39.7	37.0	31.6	43.3	41.5	36.6	39.5	33.2	40.5	34.5	42.3	31.6	36.0	36.8	29.6		43.2	30.3	55.9	52.6	43.1			44.5	46.3
External spur																									
Internal primary branch	49.7	45.5	36.3	48.3	42.1	50.9	42.4	49.2	51.3	46.6	50.0	31.0	41.7	45.0			53.2	48.6	52.8	57.7	47.6			41.2	58.0
Internal base + secondary branch	38.6	42.6	26.9	37.6	47.1	37.6	39.3	37.6	51.3	38.3	44.3	32.6	42.5	38.3	38.2		39.8	44.3	43.3	46.8	41.0			42.1	44.3
Internal spur		9.6			9.8	13.8	8.6	12.2	11.3	8.0								7.5	11.5	12.4	7.5				
Basal thickening width	7.6	5.0	8.7	7.2	7.9	6.7	11.0	11.3	9.7	8.7	7.8	8.9	8.9	9.2	7.8		9.4	8.6	6.1	5.9	9.4			9.4	8.1
Claw4																									
Anterior primary branch	40.0	49.5	42.0	50.3	53.5	56.2	49.4	44.6	60.3	41.6	54.4	46.5	49.7		44.6		42.4	65.9	61.7	53.7	48.4			49.1	49.3
Anterior base + secondary branch	34.1	55.7	31.4	39.6	39.2	39.1	41.9	47.1	45.5	32.8	46.4	27.9	35.0	38.5	38.5		34.1	33.2	41.5	48.6	49.5			33.2	49.5
Anterior spur		15.9			9.7	9.4	9.5	12.5	13.8	11.6	5.6							4.8	10.0	11.1	8.9				
Posterior primary branch	47.9	47.0	40.6	51.5	59.8	64.5	50.6	45.3	61.1	41.1	60.5		48.8		51.8		47.7	54.5	62.7	66.8	38.4			59.4	56.3
Posterior base + secondary branch	34.9	39.5	32.6	40.7	45.4	51.9	52.1	55.2	53.2	39.1	51.1	28.3	42.5	39.0	36.0		31.6	33.8	34.1	46.8	49.3			37.1	38.4
Posterior spur																									
Basal thickening width	6.2	9.7	6.8	9.1	8.5	8.9	7.7	7.4	10.1	8.7	10.9	9.9	7.8	10.1	11.7		8.5	10.1	6.6	8.0	10.9			7.1	10.8
Hatchling(H)/Juvenile(J)/Adult(A)	H	J	H	H	A	J	A	A	A	A	A	H	H	H	H	A	H	J	A	A	A	J	H	H	

Supplementary Text S1-3. Morphometrical data of *M. pacificum* sp. nov. and *M. tardigradum* : *M. tardigradum* (µm).

	KNY01	KNY02	KNY03	KNY04	KNY05	KNY06	KNY07	KNY08	KNY09	KNY10	KNY11	OTM01	OTM02	OTM03	OTM04	OTM05	OTM06	OTM07	OTM08	OTM09
Body length	537	575	572	516	544	636	303	311	366	278	376	603	765	491	332	317	343	306	332	356
Peribuccal papillae length	7.7	8.9	8.6			8.9	4.5	4.7	5.4	4.7	4.5		9.0	8.2	4.3	5.5	4.4	5.8		
Lateral papillae length	4.8	6.6	7.0	7.0	6.3	6.6	3.9	3.9	2.7	5.3	2.8		7.5	6.6	4.5	4.3		4.2	4.7	5.0
Buccal tube																				
Length	34.0	37.3	32.9	37.1	35.7	34.3	22.8	25.3	27.4	26.4	24.5	42.1	43.3	38.8	25.8	27.5	26.4	24.0	25.6	24.9
Stylet support	24.2	23.0	23.5	23.8	23.0	23.9	15.6	15.4	17.4	18.5	18.2	26.8	26.7	24.3	18.5	19.1	17.8	16.1	16.9	17.7
Anterior width	17.5	19.1	18.3	15.5	15.5	19.1	11.0	10.0	12.4	10.3	10.3	18.9	19.6	17.2	10.8	10.4	9.9	10.5	11.0	10.6
Posterior width	10.7	14.6	16.0	12.3	9.5	18.0	9.4	8.2	10.3	7.4	8.7	15.8	14.6	10.6	8.2	9.1	7.0	8.2	8.2	8.0
Standard width	12.1	15.0	14.8	14.4	12.3	16.6	8.0	6.7	8.7	6.7	9.2	16.3	13.7	11.1	8.3	7.7	8.0	7.8	7.7	7.9
Standard/length	35.6	40.1	45.1	38.9	34.4	48.3	35.1	26.4	31.9	25.5	37.5	38.6	31.6	28.6	32.1	27.9	30.3	32.4	30.0	31.7
Posterior/anterior	60.9	76.4	87.8	79.1	61.0	94.1	85.6	81.7	83.1	71.9	84.6	83.6	74.6	61.6	76.1	87.5	70.5	78.1	74.4	75.5
Claw1																				
External primary branch	16.3	18.6	18.4	18.7	19.0	17.2	12.9	11.4	12.2	12.2	11.4	18.7	18.9	16.0	10.3	12.4	11.8	9.5	10.5	11.0
External base + secondary branch	12.8	12.8	12.8	13.0	13.5	13.3	8.4	7.3	9.4	8.8	8.1	13.8	15.0	12.7	8.1	8.5	8.8	9.7	9.1	8.9
External spur								3.5	3.6	3.0	3.2				4.8	4.1	3.0	4.0	3.7	3.1
Internal primary branch	13.8	15.8	17.2	16.7	17.6	18.1	11.7	10.8	11.6	10.5	11.3	14.5	19.7	15.2	12.1	12.6	11.6	10.0	10.8	10.5
Internal base + secondary branch	14.0	12.4	14.4	12.6	13.1	13.6	8.2	7.6	9.0	8.8	8.5	13.0	14.3	13.0	8.7	8.7	9.2	10.1	8.7	9.5
Internal spur	5.7	5.2	4.8	5.1	4.0	5.0	3.1	3.8	4.1	4.1	3.7	5.9	5.7	4.1	3.6	4.5	4.1	3.5	3.6	4.0
Basal thickening width	2.9	3.0	3.1	2.8	3.5	3.7	1.9	2.3	2.7	2.3	1.7	4.6	3.2	3.6	2.7	2.4	2.1	3.1	2.1	1.8
Claw2																				
External primary branch	16.5	17.7	18.4	18.0	17.6	17.6	12.4	13.0	13.8	11.6	11.3	19.6	20.0	18.6	13.9	13.8	12.9	10.5	10.3	12.9
External base + secondary branch	13.9	12.6	13.5	11.9	11.4	14.3	7.7	7.2	9.7	9.2	8.7	13.6	15.4	15.5	9.3	8.5	9.1	10.1	8.9	9.1
External spur								3.4	3.7	3.4	3.7				4.1		5.3	3.6	3.1	
Internal primary branch	16.1	15.2	15.9	16.5	17.8	17.9	12.1	10.6	12.4	10.9	11.4		21.7	14.8	11.9	11.3	10.9	10.5	10.0	13.5
Internal base + secondary branch	12.7	12.7	13.1	12.4	12.6	13.3	8.5	7.6	8.7	9.4	8.1	13.5	16.0	14.1	8.2	7.7	9.3	9.8	9.6	9.9
Internal spur	6.6	5.9	6.5	6.2	5.0	6.5	3.3	4.5	3.7	4.5	4.6	5.6	5.7	4.8	4.0		4.6	4.5	4.1	3.2
Basal thickening width	3.1	3.1	3.6	3.2	3.1	3.8	1.9	1.6	2.5	2.2	1.9	3.7	3.0	3.7	1.8	2.2	2.4	2.3	1.6	2.4
Claw3																				
External primary branch	18.9	18.1	17.4	18.2	19.3	20.8	11.6	10.9	12.6	14.9	11.8	18.1	22.8	16.5	13.7	13.1	13.6	11.4	11.3	13.7
External base + secondary branch	14.0	13.1	11.3	11.7	12.3	14.1	8.9	7.7	10.6	8.0	8.1	12.9	16.3	14.0	9.5	8.0	9.2	9.2	9.6	9.7
External spur								3.4	4.5		3.5				5.8	3.2	4.2	3.9	3.0	
Internal primary branch	18.1	15.4	17.2	17.0	17.6	15.6	11.2	10.0	12.2	13.4	11.5	18.3	19.3	16.4	13.3	12.1	13.1	10.4	10.7	11.4
Internal base + secondary branch	13.2	12.9	11.9	12.3	13.1	13.4	8.9	7.4	9.5		8.4	13.2	15.9	13.1	9.4	9.3	9.1	5.5	9.5	8.3
Internal spur	6.4	6.1	4.8	6.0	6.1	7.0	3.2	4.3	4.6	3.1	3.9	5.7	5.1	4.3	4.7	4.0	4.3	3.8	3.3	3.1
Basal thickening width	2.9	3.6	2.9	3.8	3.9	3.1	2.3	2.0	2.3		1.8	5.0	2.8	3.7	1.8	2.5	2.3	2.2	1.9	2.8
Claw4																				
Anterior primary branch	22.8	20.0	20.8	19.7	18.7	23.8	11.7	12.6	14.4	13.0	13.1		26.5	21.5	12.1	13.9	14.2	12.6	13.5	12.9
Anterior base + secondary branch	16.8	13.5	15.6	13.9	13.8	18.4	8.7	9.0	9.5	9.9	10.3	12.7	19.1	18.6	9.9	9.8	10.0	10.5	11.3	10.1
Anterior spur	6.6	6.4	5.4	6.3	6.8	7.6	2.6	5.0	4.1	5.1	3.8	8.0	6.3	6.8	4.3	5.6	4.6	4.8	3.2	3.8
Posterior primary branch	24.8	19.6	23.0	18.1	18.6	19.6	10.3	12.1	14.4	13.1	13.9		28.6	20.8	14.5	12.8	15.3	13.8	13.7	15.1
Posterior base + secondary branch	16.8	14.8	15.0	14.8	15.6	18.0	9.3	7.7	10.6	10.8	10.7	13.0	19.4	19.2	10.7	10.1	10.2	10.5	11.4	11.7
Posterior spur							3.1	4.7	4.5	4.7	4.3				4.0	4.0	4.9	3.9	3.6	4.7
Basal thickening width	3.0	2.7	3.6	4.2	3.1	3.1	2.3	2.0	1.8	2.5	2.3		3.4	4.0	3.6	2.3	2.3	2.6	2.2	2.2
Hatchling(H)/Juvenile(J)/Adult(A)	A	A	A	J	A	A	H	H	H	H	H	A	A	J	H	H	H	H	H	H

Supplementary Text S1-4. Morphometrical data of *M. pacificum* sp. nov. and *M. tardigradum*: *M. tardigradum* (pt).

	KNY01	KNY02	KNY03	KNY04	KNY05	KNY06	KNY07	KNY08	KNY09	KNY10	KNY11	OTM01	OTM02	OTM03	OTM04	OTM05	OTM06	OTM07	OTM08	OTM09
Body length	1579	1542	1738	1393	1524	1856	1330	1229	1334	1050	1536	1432	1765	1265	1288	1153	1298	1278	1294	1428
Peribuccal papillae length	22.7	24.0	26.1			25.9	19.7	18.8	19.7	17.7	18.4		20.8	21.1	16.5	20.0	16.8	24.1		
Lateral papillae length	14.2	17.7	21.3	18.8	17.6	19.3	17.0	15.3	10.0	19.9	11.5		17.4	17.0	17.6	15.8		17.6	18.3	20.1
Buccal tube																				
Length	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Stylet support	71.1	61.6	71.3	64.1	64.5	69.9	68.7	61.1	63.5	70.0	74.3	63.5	61.7	62.5	71.8	69.5	67.4	67.1	65.7	70.8
Anterior width	51.5	51.1	55.5	41.8	43.5	55.8	48.1	39.5	45.2	39.0	42.0	44.9	45.2	44.2	41.8	37.7	37.6	44.0	43.0	42.5
Posterior width	31.4	39.0	48.7	33.1	26.5	52.5	41.1	32.3	37.6	28.0	35.6	37.6	33.7	27.3	31.8	33.0	26.5	34.3	32.0	32.1
Standard width	35.6	40.1	45.1	38.9	34.4	48.3	35.1	26.4	31.9	25.5	37.5	38.6	31.6	28.6	32.1	27.9	30.3	32.4	30.0	31.7
Claw1																				
External primary branch	47.9	49.9	55.8	50.4	53.3	50.3	56.6	45.3	44.5	46.0	46.5	44.4	43.6	41.1	39.9	45.0	44.8	39.7	41.0	44.0
External base + secondary branch	37.5	34.3	38.8	35.1	37.8	38.7	36.9	29.0	34.3	33.1	33.2	32.8	34.6	32.6	31.5	30.9	33.3	40.4	35.4	35.6
External spur								14.0	13.2	11.4	12.9				18.7	15.0	11.2	16.9	14.4	12.4
Internal primary branch	40.6	42.4	52.2	45.2	49.3	52.8	51.3	42.7	42.2	39.5	45.9	34.3	45.4	39.1	47.0	45.8	43.8	41.7	42.2	42.1
Internal base + secondary branch	41.3	33.3	43.7	33.9	36.6	39.8	35.8	30.0	33.0	33.1	34.5	30.9	33.1	33.5	33.7	31.8	34.6	42.3	34.1	38.0
Internal spur	16.7	13.8	14.7	13.8	11.3	14.6	13.6	14.9	14.9	15.6	15.0	13.9	13.1	10.6	13.9	16.3	15.6	14.7	14.0	16.2
Basal thickening width	8.4	8.1	9.3	7.6	9.9	10.9	8.5	8.9	9.9	8.9	6.9	10.8	7.3	9.2	10.5	8.8	8.0	12.9	8.2	7.2
Claw2																				
External primary branch	48.5	47.3	56.1	38.2	49.3	51.5	54.5	51.4	50.5	44.0	46.0	46.5	46.2	47.8	53.7	50.1	48.9	43.8	40.0	51.9
External base + secondary branch	40.9	33.7	41.2	32.2	32.0	41.9	33.8	28.4	35.4	34.7	35.5	32.3	35.6	39.8	36.1	30.9	34.5	42.1	34.6	36.6
External spur								13.5	13.3	12.9	15.3				16.0		20.1	15.1	12.2	
Internal primary branch	47.2	40.7	48.4	44.5	50.0	52.2	52.9	42.1	45.1	41.1	46.4		50.0	38.1	46.1	41.0	41.4	44.0	39.1	54.0
Internal base + secondary branch	37.4	33.9	39.8	33.5	35.4	38.8	37.5	30.0	31.8	35.6	32.9	32.1	36.9	36.4	31.8	28.2	35.1	41.0	37.5	39.6
Internal spur	19.5	15.9	19.8	16.6	14.1	18.9	14.6	17.8	13.4	17.1	18.6	13.4	13.1	12.3	15.5	17.3	18.6	15.9	13.0	
Basal thickening width	9.0	8.2	10.8	8.6	8.7	11.0	8.5	6.4	8.9	8.3	7.7	8.8	7.0	9.6	6.9	7.9	9.2	9.4	6.4	9.7
Claw3																				
External primary branch	55.7	48.5	52.8	49.1	54.1	60.6	51.1	43.0	46.1	56.2	48.3	43.0	52.7	42.5	52.9	47.7	51.4	47.6	43.9	54.9
External base + secondary branch	41.2	35.1	34.4	31.6	34.5	41.1	39.2	30.3	38.7	30.3	33.1	30.6	37.5	36.1	36.8	29.0	34.8	38.5	37.5	38.9
External spur								13.5	16.5		14.2				22.5		11.7	15.8	16.1	11.8
Internal primary branch	53.3	41.2	52.4	45.8	49.3	45.6	49.0	39.5	44.6	50.7	46.9	43.4	44.6	42.1	51.5	43.9	49.6	43.2	41.9	45.9
Internal base + secondary branch	38.8	34.6	36.1	33.1	36.7	39.0	38.9	29.2	34.6		34.2	31.2	36.7	33.6	36.2	33.7	34.4	23.1	37.2	33.3
Internal spur	18.7	16.3	14.6	16.1	17.0	20.5	14.1	17.0	16.7	11.6	15.8	13.6	11.8	11.1	18.1	14.7	16.4	15.9	13.0	12.4
Basal thickening width	8.5	9.5	8.8	10.1	10.9	9.0	10.1	8.1	8.5		7.4	11.8	6.4	9.5	7.0	9.0	8.6	9.0	7.3	11.0
Claw4																				
Anterior primary branch	67.1	53.6	63.3	53.2	52.5	69.6	51.2	49.8	52.7	49.1	53.3		61.3	55.4	47.0	50.4	53.8	52.5	52.8	51.9
Anterior base + secondary branch	49.3	36.1	47.6	37.4	38.7	53.7	38.1	35.7	34.5	37.3	42.0	30.1	44.1	47.9	38.5	35.7	38.0	43.9	44.0	40.4
Anterior spur	19.4	17.2	16.3	16.9	19.0	22.0	11.4	19.8	15.0	19.4	15.5	18.9	14.4	17.6	16.5	20.2	17.2	20.2	12.4	15.4
Posterior primary branch	34.9	31.9	32.3	28.2	28.7	28.0	15.0	19.8	22.6	18.8	18.6		46.3	33.3	20.2	18.4	22.7	20.5	20.8	21.3
Posterior base + secondary branch	49.3	39.7	45.7	40.0	43.8	52.4	40.8	30.6	38.8	41.0	43.8	30.8	44.7	49.3	41.3	36.8	38.7	43.6	44.6	46.9
Posterior spur								13.4	18.8	16.4	17.7				15.7	14.7	18.4	16.4	14.1	19.0
Basal thickening width	8.9	7.3	10.8	11.3	8.7	8.9	9.9	7.9	6.5	9.3	9.3		7.9	10.4	14.0	8.4	8.7	10.6	8.4	8.7
Hatchling(H)/Juvenile(J)/Adult(A)	A	A	A	J	A	A	H	H	H	H	H	A	A	J	H	H	H	H	H	H

Supplementary Text S2-1. p-distance matrix: 18S.

Mil.tar_RUJ018	0.000	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.005	0.005	0.002	0.005	0.002	0.002	0.002	0.002	0.002	0.003	0.003
AY592120.1_Milnesium_tardigradum_18S_ribosomal	0.000	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.005	0.005	0.002	0.005	0.002	0.002	0.002	0.002	0.002	0.003	0.003
Mil.sp._PH.000.02.18S_Tar_FF1+Rr1	0.002	0.002	0.002	0.000	0.000	0.000	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.003	0.003	0.002	0.003	0.003	0.003	0.003	0.005	0.005	0.002	0.005	0.002	0.002	0.002	0.002	0.002	0.003	0.003
Milnesium_pacificum.sp.nov.OGA7_18s_LC511092	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.003	0.004	0.003	0.003	0.004	0.002	0.003	0.003	0.003	0.003	0.004	0.003	0.006	0.006	0.000	0.005	0.000	0.000	0.003	0.003	0.003	0.003	0.003	
MK567640.1_Milnesium_tardigradum_isolate_TM08	0.002	0.002	0.000	0.002	0.000	0.000	0.000	0.002	0.003	0.004	0.004	0.004	0.003	0.003	0.002	0.003	0.002	0.003	0.003	0.003	0.005	0.005	0.002	0.005	0.002	0.002	0.002	0.002	0.003	0.003	
GQ925695.1_Milnesium_tardigradum_clone_NTU	0.002	0.002	0.000	0.002	0.000	0.000	0.002	0.002	0.003	0.004	0.004	0.004	0.003	0.003	0.002	0.003	0.002	0.003	0.003	0.003	0.005	0.005	0.002	0.005	0.002	0.002	0.002	0.002	0.003	0.003	
GQ925694.1_Milnesium_tardigradum_clone_NTU	0.002	0.002	0.000	0.002	0.000	0.000	0.002	0.002	0.003	0.004	0.004	0.004	0.003	0.003	0.002	0.003	0.002	0.003	0.003	0.003	0.005	0.005	0.002	0.005	0.002	0.002	0.002	0.002	0.003	0.003	
KT951660.1_Milnesium_berladniscorum_18S_ribosom	0.003	0.003	0.002	0.003	0.002	0.002	0.002	0.002	0.003	0.004	0.004	0.004	0.003	0.003	0.003	0.004	0.003	0.003	0.004	0.004	0.005	0.005	0.002	0.005	0.002	0.002	0.003	0.003	0.004	0.004	
KT951664.1_Milnesium_varefidum_18S_ribosomal	0.003	0.003	0.002	0.003	0.002	0.002	0.002	0.003	0.003	0.004	0.003	0.003	0.003	0.003	0.003	0.004	0.003	0.003	0.004	0.004	0.005	0.005	0.002	0.005	0.002	0.002	0.003	0.003	0.003	0.003	
MG912554.1_Milnesium_tardigradum_strain_neotype	0.003	0.003	0.005	0.007	0.005	0.005	0.005	0.007	0.007	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.004	0.003	0.006	0.006	0.003	0.005	0.003	0.003	0.003	0.003	0.004	0.004		
U49909.1_Milnesium_tardigradum_18S_rRNA	0.005	0.005	0.007	0.009	0.007	0.007	0.007	0.009	0.009	0.009	0.009	0.005	0.005	0.004	0.005	0.003	0.003	0.003	0.003	0.003	0.006	0.006	0.004	0.005	0.004	0.004	0.003	0.003	0.004	0.004	
EU266923.1_Milnesium.sp._Min_05_141_18S	0.009	0.009	0.010	0.009	0.010	0.010	0.010	0.012	0.009	0.009	0.012	0.014	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.006	0.006	0.004	0.005	0.004	0.004	0.003	0.003	0.004	0.004	
EU266922.1_Milnesium.sp._Min_06_108_18S	0.009	0.009	0.010	0.009	0.010	0.010	0.010	0.012	0.009	0.012	0.014	0.000	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.006	0.006	0.003	0.006	0.003	0.003	0.004	0.004	0.004	0.004	
EU266924.1_Milnesium.sp._Min_06_123_18S	0.007	0.007	0.009	0.010	0.009	0.009	0.009	0.010	0.010	0.010	0.009	0.015	0.005	0.003	0.003	0.004	0.003	0.004	0.003	0.006	0.006	0.004	0.004	0.006	0.004	0.003	0.003	0.004	0.004		
Milnesium_pacificum.sp.nov.MW_18s_LC511088	0.007	0.007	0.005	0.003	0.005	0.005	0.005	0.007	0.007	0.010	0.012	0.012	0.014	0.004	0.004	0.004	0.004	0.004	0.004	0.006	0.006	0.002	0.005	0.002	0.002	0.004	0.004	0.004	0.004		
GQ925693.1_Milnesium_tardigradum_clone_NTU	0.003	0.003	0.005	0.007	0.005	0.005	0.005	0.007	0.007	0.007	0.005	0.012	0.012	0.007	0.010	0.002	0.002	0.002	0.002	0.003	0.006	0.006	0.003	0.006	0.003	0.003	0.002	0.002	0.003	0.003	
GQ925683.1_Milnesium_tardigradum_clone_JSU	0.002	0.002	0.003	0.005	0.003	0.003	0.003	0.005	0.005	0.005	0.003	0.010	0.010	0.005	0.009	0.002	0.002	0.002	0.002	0.006	0.006	0.003	0.005	0.003	0.003	0.000	0.000	0.003	0.003		
GQ925692.1_Milnesium_tardigradum_clone_NTU	0.003	0.003	0.005	0.007	0.005	0.005	0.005	0.007	0.007	0.007	0.005	0.012	0.012	0.007	0.010	0.003	0.002	0.002	0.002	0.003	0.006	0.006	0.003	0.006	0.003	0.003	0.002	0.002	0.003	0.003	
GQ925688.1_Milnesium_tardigradum_clone_JSU	0.002	0.002	0.003	0.005	0.003	0.003	0.003	0.005	0.005	0.005	0.003	0.010	0.010	0.005	0.009	0.002	0.000	0.002	0.002	0.006	0.006	0.003	0.005	0.003	0.003	0.000	0.000	0.003	0.003		
GQ925686.1_Milnesium_tardigradum_clone_JSU	0.003	0.003	0.005	0.007	0.005	0.005	0.005	0.007	0.007	0.007	0.005	0.012	0.012	0.007	0.010	0.003	0.002	0.003	0.002	0.003	0.005	0.003	0.003	0.006	0.003	0.003	0.002	0.002	0.003	0.003	
GQ925685.1_Milnesium_tardigradum_clone_JSU	0.005	0.005	0.007	0.009	0.007	0.007	0.007	0.009	0.009	0.009	0.007	0.014	0.014	0.009	0.012	0.002	0.003	0.005	0.003	0.005	0.007	0.003	0.003	0.006	0.006	0.004	0.004	0.002	0.002	0.004	
GQ925687.1_Milnesium_tardigradum_clone_JSU	0.005	0.005	0.007	0.009	0.007	0.007	0.007	0.009	0.009	0.009	0.007	0.014	0.014	0.009	0.012	0.005	0.003	0.005	0.003	0.005	0.007	0.003	0.003	0.006	0.006	0.003	0.003	0.002	0.002	0.004	
GQ925697.1_Milnesium_tardigradum_clone_NTU	0.015	0.015	0.014	0.015	0.014	0.014	0.014	0.015	0.015	0.019	0.020	0.024	0.024	0.022	0.019	0.019	0.017	0.019	0.017	0.019	0.020	0.020	0.000	0.000	0.006	0.007	0.006	0.006	0.006	0.006	
GQ925696.1_Milnesium_tardigradum_clone_NTU	0.015	0.015	0.014	0.015	0.014	0.014	0.014	0.015	0.015	0.019	0.020	0.024	0.024	0.022	0.019	0.019	0.017	0.019	0.017	0.019	0.020	0.020	0.000	0.006	0.007	0.006	0.006	0.006	0.006	0.006	
Milnesium_tardigradum_OTM_18s_LC511098	0.003	0.003	0.002	0.000	0.002	0.002	0.002	0.003	0.003	0.007	0.009	0.009	0.009	0.010	0.003	0.007	0.005	0.007	0.005	0.007	0.009	0.009	0.015	0.015	0.005	0.000	0.000	0.003	0.003	0.003	
HM187581.1_Milnesium_tardigradum_18S_ribosomal	0.019	0.019	0.017	0.019	0.017	0.017	0.019	0.019	0.019	0.024	0.027	0.027	0.026	0.022	0.020	0.022	0.020	0.022	0.024	0.031	0.031	0.019	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006	
Mil.bra_BR.007-03_18S_tar_FF4tar_1Rr	0.003	0.003	0.002	0.000	0.002	0.002	0.002	0.003	0.003	0.007	0.009	0.009	0.009	0.010	0.003	0.007	0.005	0.007	0.005	0.007	0.009	0.009	0.015	0.015	0.000	0.019	0.000	0.003	0.003	0.003	
Mil.bra_BR.007-02_18S_tar_FF4tar_1Rr	0.003	0.003	0.002	0.000	0.002	0.002	0.002	0.003	0.003	0.007	0.009	0.009	0.009	0.010	0.003	0.007	0.005	0.007	0.005	0.007	0.009	0.009	0.015	0.015	0.000	0.019	0.000	0.003	0.003	0.003	
MH00383.1_Milnesium_inceptum_strain_DE.001	0.002	0.002	0.003	0.005	0.003	0.003	0.003	0.005	0.005	0.005	0.003	0.010	0.010	0.005	0.009	0.002	0.000	0.002	0.000	0.002	0.003	0.003	0.017	0.017	0.005	0.020	0.005	0.005	0.000	0.003	
MG996146.1_Milnesium_alpigenum_strain_IT.057	0.002	0.002	0.003	0.005	0.003	0.003	0.003	0.005	0.005	0.005	0.003	0.010	0.010	0.005	0.009	0.002	0.000	0.002	0.000	0.002	0.003	0.003	0.017	0.017	0.005	0.020	0.005	0.000	0.003	0.003	
FJ435750.1_Milnesium_tardigradum_isolate_Tar220	0.005	0.005	0.007	0.009	0.007	0.007	0.007	0.009	0.009	0.009	0.010	0.014	0.014	0.012	0.012	0.009	0.007	0.009	0.007	0.007	0.010	0.010	0.020	0.020	0.009	0.024	0.009	0.007	0.007	0.000	
FJ435749.1_Milnesium_tardigradum_isolate_Tar235	0.005	0.005	0.007	0.009	0.007	0.007	0.007	0.009	0.009	0.009	0.010	0.014	0.014	0.012	0.012	0.009	0.007	0.009	0.007	0.007	0.010	0.010	0.020	0.020	0.009	0.024	0.009	0.009	0.007	0.000	

Supplementary Text S2-2. p-distance matrix: 28S.

Milbra_BR.007.03_28S_28SF0001+28SR0990	0.008	0.011	0.010	0.010	0.010	0.009	0.009	0.010	0.009	0.009	0.008	0.008	0.008	0.009	0.009	0.009	0.008	0.009	0.009
Mil.sp_PH.000.02_28S_Eutar_F+28SR0990	0.055		0.011	0.012	0.012	0.011	0.011	0.011	0.011	0.010	0.010	0.010	0.010	0.012	0.011	0.011	0.011	0.011	0.011
MN191503.1_Milnesium_sp._1_DG-2019	0.101	0.105	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Mil.tar_RU.028	0.089	0.102	0.092	0.000	0.000	0.003	0.003	0.004	0.007	0.006	0.009	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.009
Milnesium_tardigradum_OTM_28s_LC511099	0.089	0.102	0.092	0.000	0.000	0.003	0.003	0.004	0.007	0.006	0.009	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.009
Milnesium_tardigradum_KNY_28s_LC511102	0.089	0.102	0.092	0.000	0.000	0.003	0.003	0.004	0.007	0.006	0.009	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.009
MG913804.1_Milnesium_tardigradum_strain_DE.002.01	0.088	0.101	0.092	0.008	0.008	0.008	0.000	0.002	0.007	0.007	0.009	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.009
KC138808.1_Milnesium_tardigradum_isolate_KZ041	0.088	0.101	0.092	0.008	0.008	0.008	0.000	0.002	0.007	0.007	0.009	0.010	0.010	0.010	0.009	0.009	0.009	0.009	0.009
KC138809.1_Milnesium_tardigradum_isolate_KZ042	0.091	0.103	0.095	0.011	0.011	0.011	0.003	0.003	0.007	0.007	0.009	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
KT951665.1_Milnesium_variefidum_28S_ribosomal	0.091	0.102	0.084	0.030	0.030	0.030	0.033	0.035		0.005	0.008	0.009	0.009	0.009	0.010	0.010	0.010	0.010	0.010
KT951661.1_Milnesium_berladnicorum_28S_ribosomal	0.085	0.095	0.078	0.037	0.037	0.037	0.040	0.040	0.042	0.021		0.008	0.009	0.009	0.009	0.010	0.009	0.009	0.009
MH000384.1_Milnesium_alpigenum_strain_IT.057	0.068	0.089	0.079	0.068	0.068	0.068	0.069	0.072	0.061	0.054		0.007	0.007	0.007	0.008	0.008	0.009	0.008	0.008
JX888587.1_Milnesium_sp._F6526_28S	0.081	0.095	0.092	0.086	0.086	0.086	0.085	0.085	0.088	0.072	0.068	0.040		0.000	0.008	0.008	0.008	0.008	0.008
JX888586.1_Milnesium_sp._F6528_28S	0.081	0.095	0.092	0.086	0.086	0.086	0.085	0.085	0.088	0.072	0.068	0.040	0.000		0.008	0.008	0.008	0.008	0.008
JX888585.1_Milnesium_sp._F6529_28S	0.081	0.095	0.092	0.086	0.086	0.086	0.085	0.085	0.088	0.072	0.068	0.040	0.000	0.000		0.008	0.008	0.008	0.008
MH000385.1_Milnesium_inceptum_strain_DE.001	0.086	0.103	0.096	0.078	0.078	0.078	0.079	0.082	0.078	0.076	0.050	0.061	0.061		0.002	0.003	0.003	0.002	0.002
AY210826.1_Milnesium_sp._JMM-2003_28S	0.086	0.103	0.095	0.076	0.076	0.076	0.078	0.081	0.076	0.075	0.048	0.059	0.059	0.059	0.003		0.003	0.003	0.000
Milnesium_pacificum_sp_nov_MW_28s_LC511089	0.086	0.103	0.096	0.075	0.075	0.075	0.076	0.079	0.078	0.074	0.052	0.061	0.061	0.061	0.006	0.006		0.003	0.003
Milnesium_pacificum_sp_nov_OGA7_28s_LC511093	0.088	0.105	0.099	0.075	0.075	0.075	0.076	0.079	0.078	0.079	0.055	0.062	0.062	0.062	0.008	0.008	0.006		0.003
JX888541.1_Milnesium_tardigradum_isolate_F3727	0.086	0.103	0.095	0.076	0.076	0.076	0.078	0.081	0.076	0.075	0.048	0.059	0.059	0.059	0.003	0.000	0.006	0.008	0.000
JX888540.1_Milnesium_tardigradum_isolate_F3723	0.086	0.103	0.095	0.076	0.076	0.076	0.078	0.081	0.076	0.075	0.048	0.059	0.059	0.059	0.003	0.000	0.006	0.008	0.000

Supplementary Text S2-3, p-distance matrix: COI.

Mltar_RU028	0.009	0.010	0.010	0.010	0.015	0.015	0.014	0.015	0.015	0.014	0.015	0.016	0.014	0.017	0.015	0.016	0.019	0.019	0.019	0.019	0.018	0.017	0.019	0.019	0.019	0.019	0.017	0.017	0.018	0.018	0.020	0.017	0.017	0.017	0.018	0.020	0.019	0.019
LC511100_tardigradum_KNY_COI	0.038	0.010	0.009	0.009	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.016	0.015	0.017	0.014	0.015	0.019	0.019	0.019	0.017	0.018	0.018	0.018	0.018	0.018	0.018	0.017	0.018	0.018	0.018	0.019	0.017	0.017	0.017	0.018	0.020	0.019	0.019
LC511100_tardigradum_OTM_COI	0.050	0.045	0.006	0.004	0.015	0.015	0.015	0.015	0.015	0.015	0.016	0.016	0.015	0.016	0.019	0.017	0.020	0.019	0.019	0.020	0.018	0.020	0.020	0.020	0.020	0.019	0.019	0.019	0.019	0.019	0.020	0.019	0.019	0.019	0.021	0.019	0.019	
MG923564_tardigradum_HU_001_COI	0.040	0.038	0.014	0.004	0.014	0.014	0.015	0.014	0.014	0.014	0.015	0.015	0.015	0.016	0.016	0.017	0.020	0.020	0.020	0.019	0.020	0.019	0.019	0.019	0.018	0.018	0.018	0.018	0.019	0.018	0.018	0.019	0.020	0.019	0.019			
MG923565_tardigradum_PL_034_COI	0.045	0.040	0.009	0.009	0.014	0.014	0.014	0.014	0.014	0.014	0.015	0.015	0.014	0.015	0.017	0.016	0.017	0.020	0.020	0.020	0.018	0.019	0.019	0.019	0.019	0.019	0.018	0.017	0.018	0.018	0.019	0.017	0.017	0.018	0.020	0.019	0.019	
JH664950_tardigradum_DE_002_COI_H1	0.107	0.116	0.114	0.109	0.109	0.000	0.002	0.002	0.002	0.002	0.004	0.005	0.007	0.015	0.017	0.016	0.017	0.019	0.019	0.019	0.018	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.020	0.019	0.019	0.021	0.020		
MG923558_tardigradum_PL_142_COI	0.107	0.116	0.114	0.109	0.109	0.000	0.002	0.002	0.002	0.003	0.004	0.005	0.007	0.015	0.017	0.016	0.017	0.019	0.019	0.019	0.018	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.020	0.019	0.019	0.021	0.020			
MG923561_tardigradum_PL_023_COI	0.104	0.114	0.116	0.111	0.111	0.002	0.002	0.002	0.003	0.003	0.004	0.005	0.007	0.015	0.017	0.016	0.017	0.018	0.018	0.019	0.018	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.020	0.019	0.019	0.021	0.020				
MG923560_tardigradum_DK_001_COI	0.109	0.118	0.116	0.111	0.111	0.002	0.002	0.005	0.000	0.004	0.004	0.007	0.015	0.017	0.016	0.017	0.018	0.019	0.019	0.017	0.018	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.020	0.019	0.019	0.021	0.020					
MG923560_tardigradum_FR_072_COI	0.109	0.118	0.116	0.111	0.111	0.002	0.002	0.005	0.000	0.004	0.004	0.007	0.015	0.017	0.016	0.017	0.018	0.019	0.019	0.017	0.018	0.019	0.019	0.019	0.019	0.019	0.019	0.020	0.019	0.019	0.021	0.020						
MG923562_tardigradum_CH_002_COI	0.107	0.111	0.123	0.118	0.118	0.009	0.009	0.007	0.007	0.005	0.007	0.016	0.017	0.016	0.017	0.018	0.018	0.018	0.017	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.017	0.020	0.017	0.019	0.019	0.020	0.019	0.019				
MG923559_tardigradum_DE_002_COI_H2	0.109	0.118	0.116	0.111	0.111	0.012	0.012	0.014	0.009	0.009	0.012	0.008	0.015	0.017	0.016	0.017	0.018	0.018	0.018	0.018	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.020	0.019	0.019	0.020	0.020					
MG923563_tardigradum_PL_028_COI	0.114	0.118	0.111	0.107	0.107	0.024	0.024	0.026	0.021	0.021	0.028	0.031	0.016	0.018	0.015	0.018	0.019	0.020	0.020	0.019	0.017	0.019	0.020	0.020	0.020	0.019	0.018	0.022	0.018	0.019	0.019	0.020	0.019	0.018	0.021	0.021		
KT951663_variefridum_GB_001_COI	0.142	0.140	0.145	0.135	0.140	0.128	0.128	0.130	0.130	0.130	0.137	0.128	0.135	0.015	0.014	0.015	0.018	0.018	0.018	0.017	0.018	0.019	0.019	0.019	0.019	0.019	0.017	0.017	0.018	0.016	0.018	0.018	0.018	0.018	0.018	0.018	0.022	0.022
MG923566_domestica_RO_008_COI	0.142	0.140	0.145	0.145	0.140	0.147	0.147	0.145	0.147	0.147	0.145	0.149	0.126	0.015	0.016	0.016	0.016	0.016	0.019	0.017	0.018	0.018	0.018	0.019	0.019	0.019	0.018	0.018	0.019	0.018	0.017	0.017	0.020	0.020	0.020	0.020		
KT951659_berladnicorum_RO_002_COI	0.154	0.145	0.152	0.142	0.149	0.137	0.137	0.140	0.140	0.140	0.147	0.142	0.130	0.128	0.135	0.019	0.019	0.019	0.019	0.019	0.020	0.020	0.020	0.020	0.020	0.019	0.018	0.021	0.019	0.016	0.018	0.021	0.020	0.020	0.020	0.021	0.022	
MH000380_albigenum_COI	0.171	0.164	0.182	0.178	0.178	0.166	0.166	0.168	0.168	0.168	0.166	0.164	0.168	0.142	0.175	0.178	0.019	0.019	0.019	0.019	0.017	0.016	0.019	0.019	0.019	0.019	0.019	0.020	0.019	0.017	0.020	0.020	0.020	0.020	0.021	0.020		
MH000381_insectum_COI_E0059	0.194	0.192	0.204	0.201	0.206	0.192	0.192	0.194	0.190	0.190	0.192	0.185	0.197	0.194	0.175	0.197	0.194	0.003	0.003	0.003	0.016	0.020	0.020	0.020	0.020	0.020	0.019	0.021	0.021	0.017	0.020	0.019	0.018	0.018	0.017	0.022		
KU513422_insectum_COI_DE001	0.194	0.192	0.199	0.197	0.201	0.192	0.192	0.194	0.190	0.190	0.192	0.185	0.197	0.194	0.175	0.197	0.194	0.005	0.000	0.003	0.016	0.020	0.020	0.020	0.020	0.020	0.019	0.021	0.021	0.017	0.020	0.019	0.018	0.018	0.022	0.022		
EU244602_Minisium.sp	0.194	0.192	0.199	0.197	0.201	0.192	0.192	0.194	0.190	0.190	0.192	0.185	0.197	0.194	0.175	0.197	0.194	0.005	0.000	0.003	0.016	0.020	0.020	0.020	0.020	0.020	0.019	0.021	0.021	0.017	0.020	0.019	0.018	0.018	0.022	0.022		
EU244604_Minisium.sp	0.190	0.187	0.199	0.197	0.201	0.192	0.192	0.194	0.190	0.190	0.192	0.185	0.192	0.190	0.171	0.192	0.190	0.005	0.005	0.016	0.020	0.020	0.020	0.020	0.020	0.019	0.021	0.021	0.017	0.020	0.019	0.018	0.018	0.022	0.022			
KX309850_Minisium.sp	0.156	0.145	0.156	0.154	0.154	0.154	0.154	0.156	0.152	0.152	0.154	0.149	0.149	0.159	0.164	0.156	0.147	0.146	0.148	0.148	0.145	0.020	0.021	0.021	0.021	0.020	0.019	0.018	0.020	0.018	0.020	0.020	0.019	0.019	0.021	0.020		
MH751518_lagnappa_COI	0.192	0.194	0.204	0.199	0.199	0.187	0.187	0.190	0.190	0.190	0.192	0.182	0.190	0.168	0.185	0.182	0.159	0.187	0.187	0.187	0.187	0.182	0.173	0.154	0.002	0.002	0.016	0.016	0.017	0.019	0.017	0.018	0.018	0.017	0.017	0.020	0.019	
JX883825_Minisium.sp	0.192	0.185	0.194	0.190	0.192	0.197	0.197	0.199	0.199	0.199	0.206	0.199	0.199	0.190	0.192	0.194	0.180	0.211	0.216	0.216	0.213	0.190	0.154	0.002	0.002	0.002	0.006	0.019	0.018	0.020	0.018	0.020	0.019	0.020	0.020	0.020	0.020	
JX883824_Minisium.sp	0.192	0.185	0.194	0.190	0.192	0.197	0.197	0.199	0.199	0.199	0.206	0.199	0.199	0.190	0.192	0.194	0.180	0.211	0.216	0.216	0.213	0.190	0.154	0.002	0.000	0.005	0.019	0.018	0.020	0.018	0.020	0.019	0.020	0.020	0.020	0.020		
JX883823_Minisium.sp	0.185	0.187	0.192	0.187	0.190	0.192	0.192	0.194	0.194	0.194	0.201	0.194	0.197	0.185	0.194	0.194	0.178	0.213	0.218	0.218	0.216	0.192	0.154	0.014	0.012	0.012	0.018	0.018	0.020	0.018	0.020	0.019	0.020	0.020	0.020	0.020		
MH751517_granulatum_70C_COI	0.180	0.175	0.187	0.175	0.178	0.166	0.166	0.168	0.168	0.168	0.171	0.161	0.173	0.161	0.178	0.171	0.164	0.204	0.204	0.204	0.199	0.185	0.192	0.216	0.216	0.216	0.018	0.017	0.017	0.017	0.017	0.017	0.017	0.020	0.019	0.019		
MK484029_Minisium.sp_PH_014	0.187	0.192	0.199	0.192	0.194	0.201	0.201	0.204	0.204	0.204	0.204	0.197	0.213	0.161	0.190	0.204	0.166	0.223	0.223	0.218	0.180	0.159	0.211	0.211	0.211	0.197	0.018	0.019	0.021	0.020	0.019	0.020	0.019	0.020	0.020	0.020		
KJ857001_Minisium.sp	0.209	0.213	0.220	0.216	0.211	0.211	0.213	0.213	0.213	0.213	0.216	0.211	0.213	0.190	0.206	0.197	0.237	0.237	0.232	0.209	0.194	0.204	0.201	0.201	0.206	0.175	0.204	0.017	0.019	0.018	0.021	0.020	0.020	0.020	0.018	0.018		
EP32553_Minisium.sp	0.190	0.197	0.204	0.199	0.204	0.185	0.185	0.182	0.187	0.187	0.185	0.180	0.185	0.173	0.173	0.185	0.199	0.190	0.190	0.190	0.187	0.199	0.192	0.227	0.227	0.227	0.227	0.227	0.227	0.227	0.227	0.227	0.227	0.227	0.227	0.227	0.227	
KP013813_Minisium.sp	0.199	0.192	0.211	0.201	0.204	0.206	0.206	0.204	0.206	0.206	0.204	0.199	0.201	0.187	0.182	0.204	0.211	0.201	0.206	0.206	0.204	0.216	0.201	0.223	0.223	0.223	0.220	0.194	0.239	0.232	0.083	0.018	0.019	0.019	0.019	0.019		
MK484019_Minisium.sp_BR_007	0.197	0.201	0.201	0.197	0.199	0.197	0.197	0.199	0.199	0.199	0.201	0.199	0.194	0.190	0.192	0.216	0.209	0.227	0.227	0.227	0.223	0.216	0.171	0.213	0.213	0.216	0.206	0.201	0.213	0.230	0.232	0.013	0.013	0.012				

