

**Table S1.** Habitats of *Rhodospirillaceae*

Species	Habitat	Reference
<i>Azospirillum amazonense</i>	roots of maize, sorghum, rice and wheat plants, as well as forage grasses grown around Brazil	[1]
<i>Azospirillum brasiliense Sp245</i>	colonizing several plants including cereals, forage grasses, vegetables, legumes, and banana plants	[2]
<i>Azospirillum canadense</i>	corn rhizosphere	[3]
<i>Azospirillum doebereinerae</i>	root of <i>Miscanthus sinensis</i> cv. "Giganteus" and <i>Miscanthus sacchariflorus</i> and also in the rhizosphere soil of these plants grown in Freising, Germany	[4]
<i>Azospirillum halopraeferens</i>	root surface of Kallar grass ( <i>Leptochloa fusca</i> ) grown in saline-sodic soils in Punjab, Pakistan	[5]
<i>Azospirillum irakense</i>	rhizosphere soil and roots of rice plants grown in the region of Diwaniyah in Iraq	[6]
<i>Azospirillum largimobile</i>	fresh lake water in Australia	[7, 8]
<i>Azospirillum lipoferum 4B</i>	rice field of Camargue (South of France)	[9]
<i>Azospirillum melinis</i>	isolated from molasses grass ( <i>Melinis minutiflora</i> Beauv.)	[10]
<i>Azospirillum oryzae</i>	roots of the rice plant <i>Oryza sativa</i>	[11]
<i>Azospirillum palatum</i>	forest soil in Zhejiang province, China	[12]
<i>Azospirillum picis</i>	discarded road tar	[13]
<i>Azospirillum rugosum</i>	oil-contaminated soil sample	[14]
<i>Azospirillum sp. B510</i>	endophytic bacterium isolated from stems of rice plants	[15]
<i>Azospirillum zae</i>	corn rhizosphere	[16]
<i>Caenispirillum bisanense</i>	sludge from the wastewater treatment plant	[17]
<i>Dechlorospirillum sp.</i>	sewage treatment plant	[18]
<i>Defluviicoccus vanus</i>	wastewater	[19]
<i>Fodinicurvata fenggangensis</i>	salt mine in Yunnan, south-west China	[20]
<i>Fodinicurvata sediminis</i>	salt mine in Yunnan, south-west China	[20]
<i>Inquilinus ginsengisoli</i>	soil	[21]
<i>Inquilinus limosus</i>	human respiratory tract	[22]
<i>Insolitispillum peregrinum</i>	primary oxidation pond	[23]
<i>Magnetospirillum bellicus</i>	bioelectrical reactor (BER) inoculated from creek water	[24]
<i>Magnetospirillum gryphiswaldense MSR-1</i>	freshwater sediment	[25]
<i>Magnetospirillum magneticum AMB-1</i>	pond water in Tokyo Japan	[26]
<i>Magnetospirillum magnetotacticum MS-1</i>	microaerobic zones from freshwater sediments	[27]
<i>Marispillum indicum</i>	deep sea	[28]
<i>Nisaea denitrificans</i>	mediterranean sea	[29]
<i>Nisaea nitritireducens</i>	mediterranean sea	[29]
<i>Nisaea sp. BAL199</i>	3m depth of Baltic proper	[30]
<i>Novispirillum itersonii</i>	pond water	[23]
<i>Oceanibaculum indicum</i>	deep sea Indian Ocean	[31]
<i>Oceanibaculum pacificum</i>	hydrothermal sediment of the south-west Pacific ocean	[32]
<i>Pelagibius litoralis</i>	coastal seawater Korea	[33]
<i>Phaeospirillum chandramohani</i>	freshwater habitat	[34]

<i>Phaeospirillum cystidoformans</i>	freshwater habitat	[35]
<i>Phaeospirillum fulvum</i>	stagnant and anoxic freshwater habitats that are exposed to the light	[35]
<i>Phaeospirillum molischianum</i>	stagnant and anoxic freshwater habitats that are exposed to the light	[35]
<i>Phaeovibrio sulfidiphilus</i>	brackish water	[36]
<i>Rhodocista pekingensis</i>	wastewater	[37]
<i>Rhodocista xerospirillum</i>	lake water	[38]
<i>Rhodospira trueperi</i>	salt marsh microbial mat	[39]
<b><i>Rhodospirillum centenum SW</i></b>	hot spring (hot spring mud) Wyoming, fresh water	[40]
<i>Rhodospirillum photometricum</i>	freshwater pond	[41]
<b><i>Rhodospirillum rubrum ATCC 11170</i></b>	aquatic environments such as lakes, streams, and standing water	[42]
<i>Rhodospirillum sulfurexigens</i>	freshwater reservoir	[43]
<i>Rhodovibrio salinarum</i>	halophytic, sea water	[35]
<i>Rhodovibrio sodomensis</i>	water/sediment of the Dead Sea	[35]
<i>Roseospira goensis</i>	seawater	[44]
<i>Roseospira marina</i>	sediments, saline springs, microbial mats	[45]
<i>Roseospira mediosalina</i>	sediments, saline springs, microbial mats	[45]
<i>Roseospira navarrensis</i>	sediments, saline springs, microbial mats	[45]
<i>Roseospira thiosulfatophila</i>	microbial mats in French Polynesia	[45]
<i>Roseospira visakhapatnamensis</i>	seawater	[44]
<i>Skermanella aerolata</i>	air	[46]
<i>Skermanella parooensis</i>	water from the Paroo Channel in southwest Queensland	[47]
<i>Skermanella xinjiangensis</i>	desert soil	[48]
<i>Telmatospirillum siberiense</i>	groundwater (mesotrophic fen)	[49]
<i>Thalassobaculum litoreum</i>	coastal seawater	[50]
<i>Thalassobaculum salexigens</i>	Mediterranean Sea	[51]
<i>Thalassospira lucentensis</i>	Mediterranean Sea	[52, 53]
<i>Thalassospira profundimaris</i>	deep sea	[54]
<i>Thalassospira tepidiphila</i>	petroleum-contaminated seawater during a bioremediation experiment	[55]
<i>Thalassospira xiamensis</i>	surface water of a waste-oil pool	[54]
<i>Thalassospira xianhensis</i>	oil-degrading marine bacterium from oil-polluted soil	[56]
<i>Tistrella mobilis</i>	wastewater, deep sea	[53, 57]

Table of all currently described members of the family *Rhodospirillaceae* and the habitat of their initial isolation as of January 2011. Species names in bold refer to sequenced strains, both complete and draft genomes.

## References:

1. Magalhaes FM, Baldani JI, Souto SM, Kuykendall JR, Doeberreiner J (1983) A new acid-tolerant *Azospirillum* species. An. Acad. Bras. Cienc. 55: 417-430.
2. Tarrand JJ, Krieg NR, Dobereiner J (1978) A taxonomic study of the *Spirillum lipoferum* group, with descriptions of a new genus, *Azospirillum* gen. nov. and two species, *Azospirillum lipoferum* (Beijerinck) comb. nov. and *Azospirillum brasiliense* sp. nov. Can J Microbiol 24: 967-980.
3. Mehnaz S, Weselowski B, Lazarovits G (2007) *Azospirillum canadense* sp. nov., a nitrogen-fixing bacterium isolated from corn rhizosphere. Int J Syst Evol Microbiol 57: 620-624.
4. Eckert B, Weber OB, Kirchhof G, Halbritter A, Stoffels M, et al. (2001) *Azospirillum doebereinerae* sp. nov., a nitrogen-fixing bacterium associated with the C4-grass *Miscanthus*. Int J Syst Evol Microbiol 51: 17-26.
5. Hurek T, Reinhold B, Fendrik I, Niemann EG (1987) Root-zone-specific oxygen tolerance of *Azospirillum* spp. and diazotrophic rods closely associated with Kollar grass. Appl Environ Microbiol 53: 163-169.
6. Khammas KM, Ageron E, Grimont PA, Kaiser P (1989) *Azospirillum irakense* sp. nov., a nitrogen-fixing bacterium associated with rice roots and rhizosphere soil. Res Microbiol 140: 679-693.
7. Dekhil SB, Cahill M, Stackebrandt E, Sly LI (1997) Transfer of *Conglomeromonas largomobilis* subsp *largomobilis* to the genus *Azospirillum* as *Azospirillum largomobile* comb nov, and elevation of *Conglomeromonas largomobilis* subsp *parooensis* to the new type species of *Conglomeromonas*, *Conglomeromonas parooensis* sp nov. Systematic and Applied Microbiology 20: 72-77.
8. Skerman VBD, Sly LI, Williamson ML (1983) *Conglomeromonas-Largomobilis* Gen-Nov, Sp-Nov, a Sodium-Sensitive, Mixed-Flagellated Organism from Fresh Waters. International Journal of Systematic Bacteriology 33: 300-308.
9. Ladha JK, Barraquio WL, Watanabe I (1982) Immunological techniques to identify *Azospirillum* associated with wetland rice. Can J Microbiol 28: 478-485.
10. Peng G, Wang H, Zhang G, Hou W, Liu Y, et al. (2006) *Azospirillum melinis* sp. nov., a group of diazotrophs isolated from tropical molasses grass. Int J Syst Evol Microbiol 56: 1263-1271.
11. Xie CH, Yokota A (2005) *Azospirillum oryzae* sp. nov., a nitrogen-fixing bacterium isolated from the roots of the rice plant *Oryza sativa*. Int J Syst Evol Microbiol 55: 1435-1438.
12. Zhou Y, Wei W, Wang X, Xu L, Lai R (2009) *Azospirillum palatum* sp. nov., isolated from forest soil in Zhejiang province, China. J Gen Appl Microbiol 55: 1-7.
13. Lin SY, Young CC, Hupfer H, Siering C, Arun AB, et al. (2009) *Azospirillum picis* sp. nov., isolated from discarded tar. Int J Syst Evol Microbiol 59: 761-765.
14. Young CC, Hupfer H, Siering C, Ho MJ, Arun AB, et al. (2008) *Azospirillum rugosum* sp. nov., isolated from oil-contaminated soil. Int J Syst Evol Microbiol 58: 959-963.
15. Kaneko T, Minamisawa K, Isawa T, Nakatsukasa H, Mitsui H, et al. (2010) Complete genomic structure of the cultivated rice endophyte *Azospirillum* sp. B510. DNA Res 17: 37-50.
16. Mehnaz S, Weselowski B, Lazarovits G (2007) *Azospirillum zae* sp. nov., a diazotrophic bacterium isolated from rhizosphere soil of *Zea mays*. Int J Syst Evol Microbiol 57: 2805-2809.
17. Yoon JH, Kang SJ, Park S, Oh TK (2007) *Caenispirillum bisanense* gen. nov., sp. nov., isolated from sludge of a dye works. Int J Syst Evol Microbiol 57: 1217-1221.
18. Bardya N, Bae JH (2008) Isolation and characterization of *Dechlorospirillum* anomalous strain JB116 from a sewage treatment plant. Microbiol Res 163: 182-191.
19. Maszenan AM, Seviour RJ, Patel BK, Janssen PH, Wanner J (2005) *Defluviboccus vanus* gen. nov., sp. nov., a novel Gram-negative coccus/coccobacillus in the 'Alphaproteobacteria' from activated sludge. Int J Syst Evol Microbiol 55: 2105-2111.

20. Wang YX, Liu JH, Zhang XX, Chen YG, Wang ZG, et al. (2009) *Fodinicurvata sediminis* gen. nov., sp. nov. and *Fodinicurvata fenggangensis* sp. nov., poly-beta-hydroxybutyrate-producing bacteria in the family *Rhodospirillaceae*. *Int J Syst Evol Microbiol* 59: 2575-2581.
21. Jung HM, Lee JS, Bae HM, Yi TH, Kim SY, et al. (2011) *Inquilinus ginsengisoli* sp. nov., isolated from soil of a ginseng field. *Int J Syst Evol Microbiol* 61: 201-204.
22. Wellinghausen N, Essig A, Sommerburg O (2005) *Inquilinus limosus* in patients with cystic fibrosis, Germany. *Emerg Infect Dis* 11: 457-459.
23. Yoon JH, Kang SJ, Park S, Lee SY, Oh TK (2007) Reclassification of *Aquaspirillum itersonii* and *Aquaspirillum peregrinum* as *Novispirillum itersonii* gen. nov., comb. nov. and *Insolitispirillum peregrinum* gen. nov., comb. nov. *Int J Syst Evol Microbiol* 57: 2830-2835.
24. Thrash JC, Ahmadi S, Torok T, Coates JD (2010) *Magnetospirillum bellicus* sp. nov., a novel dissimilatory perchlorate-reducing alphaproteobacterium isolated from a bioelectrical reactor. *Appl Environ Microbiol* 76: 4730-4737.
25. Geelhoed JS, Sorokin DY, Epping E, Tourova TP, Banciu HL, et al. (2009) Microbial sulfide oxidation in the oxic-anoxic transition zone of freshwater sediment: involvement of lithoautotrophic *Magnetospirillum* strain J10. *FEMS Microbiol Ecol* 70: 54-65.
26. Matsunaga T, Okamura Y, Fukuda Y, Wahyudi AT, Murase Y, et al. (2005) Complete genome sequence of the facultative anaerobic magnetotactic bacterium *Magnetospirillum* sp. strain AMB-1. *DNA Res* 12: 157-166.
27. Schleifer KH, Schuler D, Spring S, Weizenegger M, Amann R, et al. (1991) The Genus *Magnetospirillum* Gen-Nov - Description of *Magnetospirillum-Gryphiswaldense* Sp-Nov and Transfer of *Aquaspirillum-Magnetotacticum* to *Magnetospirillum-Magnetotacticum* Comb-Nov. *Systematic and Applied Microbiology* 14: 379-385.
28. Lai Q, Yuan J, Gu L, Shao Z (2009) *Marispirillum indicum* gen. nov., sp. nov., isolated from a deep-sea environment. *Int J Syst Evol Microbiol* 59: 1278-1281.
29. Urios L, Michotey V, Intertaglia L, Lesongeur F, Lebaron P (2008) *Nisaea denitrificans* gen. nov., sp. nov. and *Nisaea nitritireducens* sp. nov., two novel members of the class *Alphaproteobacteria* from the Mediterranean Sea. *Int J Syst Evol Microbiol* 58: 2336-2341.
30. Riemann L, Leitet C, Pommier T, Simu K, Holmfeldt K, et al. (2008) The native bacterioplankton community in the central Baltic Sea is influenced by freshwater bacterial species. *Appl Environ Microbiol* 74: 503-515.
31. Lai Q, Yuan J, Wu C, Shao Z (2009) *Oceanibaculum indicum* gen. nov., sp. nov., isolated from deep seawater of the Indian Ocean. *Int J Syst Evol Microbiol* 59: 1733-1737.
32. Dong C, Lai Q, Chen L, Sun F, Shao Z, et al. (2010) *Oceanibaculum pacificum* sp. nov., isolated from hydrothermal field sediment of the south-west Pacific Ocean. *Int J Syst Evol Microbiol* 60: 219-222.
33. Choi DH, Hwang CY, Cho BC (2009) *Pelagibius litoralis* gen. nov., sp. nov., a marine bacterium in the family *Rhodospirillaceae* isolated from coastal seawater. *Int J Syst Evol Microbiol* 59: 818-823.
34. Anil Kumar P, Srinivas TN, Takaichi S, Maoka T, Sasikala C, et al. (2009) *Phaeospirillum chandramohanii* sp. nov., a phototrophic alphaproteobacterium with carotenoid glycosides. *Int J Syst Evol Microbiol* 59: 2089-2093.
35. Imhoff JF, Petri R, Suling J (1998) Reclassification of species of the spiral-shaped phototrophic purple non-sulfur bacteria of the alpha-Proteobacteria: description of the new genera *Phaeospirillum* gen. nov., *Rhodovibrio* gen. nov., *Rhodothalassium* gen. nov. and *Roseospira* gen. nov. as well as transfer of *Rhodospirillum fulvum* to *Phaeospirillum fulvum* comb. nov., of *Rhodospirillum molischianum* to *Phaeospirillum molischianum* comb. nov., of *Rhodospirillum salinarum* to *Rhodovibrio salexigens*. *Int J Syst Bacteriol* 48 Pt 3: 793-798.

36. Lakshmi KV, Sasikala C, Ashok GV, Chandrasekaran R, Ramana CV (2010) *Phaeovibrio sulfidiphilus* gen. nov., sp. nov., phototrophic alphaproteobacterium isolated from brackish water. *Int J Syst Evol Microbiol*.
37. Zhang D, Yang H, Zhang W, Huang Z, Liu SJ (2003) *Rhodocista pekingensis* sp. nov., a cyst-forming phototrophic bacterium from a municipal wastewater treatment plant. *Int J Syst Evol Microbiol* 53: 1111-1114.
38. Winkelmann G, Schmidtkunz K, Rainey FA (1996) Characterization of a novel *Spirillum*-like bacterium that degrades ferrioxamine-type siderophores. *Biometals* 9: 78-83.
39. Pfennig N, Lunsdorf H, Suling J, Imhoff JF (1997) *Rhodospira trueperi* gen. nov., spec. nov., a new phototrophic Proteobacterium of the alpha group. *Arch Microbiol* 168: 39-45.
40. Favinger J, Stadtwald R, Gest H (1989) *Rhodospirillum centenum*, sp. nov., a thermotolerant cyst-forming anoxygenic photosynthetic bacterium. *Antonie Van Leeuwenhoek* 55: 291-296.
41. Skerman VBD, McGowan V, Sneath PHA (1980) Approved lists of bacterial names. *Int J Syst Evol Microbiol* 30: 225-420.
42. Reslewic S, Zhou S, Place M, Zhang Y, Briska A, et al. (2005) Whole-genome shotgun optical mapping of *Rhodospirillum rubrum*. *Appl Environ Microbiol* 71: 5511-5522.
43. Anil Kumar P, Aparna P, Srinivas TN, Sasikala C, Ramana Ch V (2008) *Rhodospirillum sulfurexigens* sp. nov., a phototrophic alphaproteobacterium requiring a reduced sulfur source for growth. *Int J Syst Evol Microbiol* 58: 2917-2920.
44. Kalyan Chakravarthy S, Srinivas TN, Anil Kumar P, Sasikala C, Ramana Ch V (2007) *Roseospira visakhapatnamensis* sp. nov. and *Roseospira goensis* sp. nov. *Int J Syst Evol Microbiol* 57: 2453-2457.
45. Guyoneaud R, Moune S, Eatock C, Bothorel V, Hirschler-Rea A, et al. (2002) Characterization of three spiral-shaped purple nonsulfur bacteria isolated from coastal lagoon sediments, saline sulfur springs, and microbial mats: emended description of the genus *Roseospira* and description of *Roseospira marina* sp. nov., *Roseospira navarrensis* sp. nov., and *Roseospira thiosulfatophila* sp. nov. *Arch Microbiol* 178: 315-324.
46. Weon HY, Kim BY, Hong SB, Joa JH, Nam SS, et al. (2007) *Skermanella aerolata* sp. nov., isolated from air, and emended description of the genus *Skermanella*. *Int J Syst Evol Microbiol* 57: 1539-1542.
47. Sly LI, Stackebrandt E (1999) Description of *Skermanella parooensis* gen. nov., sp. nov. to accommodate *Conglomeromonas largomobilis* subsp. *parooensis* following the transfer of *Conglomeromonas largomobilis* subsp. *largomobilis* to the genus *Azospirillum*. *Int J Syst Evol Microbiol* 49: 541-544.
48. An H, Zhang L, Tang Y, Luo X, Sun T, et al. (2009) *Skermanella xinjiangensis* sp. nov., isolated from the desert of Xinjiang, China. *Int J Syst Evol Microbiol* 59: 1531-1534.
49. Sizova MV, Panikov NS, Spiridonova EM, Slobodova NV, Tourova TP (2007) Novel facultative anaerobic acidotolerant *Telmatospirillum siberiense* gen. nov. sp. nov. isolated from mesotrophic fen. *Syst Appl Microbiol* 30: 213-220.
50. Zhang GI, Hwang CY, Cho BC (2008) *Thalassobaculum litoreum* gen. nov., sp. nov., a member of the family *Rhodospirillaceae* isolated from coastal seawater. *Int J Syst Evol Microbiol* 58: 479-485.
51. Urios L, Michotey V, Intertaglia L, Lesongeur F, Lebaron P (2010) *Thalassobaculum salexigens* sp. nov., a new member of the family *Rhodospirillaceae* from the NW Mediterranean Sea, and emended description of the genus *Thalassobaculum*. *Int J Syst Evol Microbiol* 60: 209-213.
52. Lopez-Lopez A, Pujalte MJ, Benlloch S, Mata-Roig M, Rossello-Mora R, et al. (2002) *Thalassospira lucentensis* gen. nov., sp. nov., a new marine member of the alpha-Proteobacteria. *Int J Syst Evol Microbiol* 52: 1277-1283.

53. Cui Z, Shao Z (2009) [Predominant strains of polycyclic aromatic hydrocarbon-degrading consortia from deep sea of the Middle Atlantic Ridge]. Wei Sheng Wu Xue Bao 49: 902-909.
54. Liu C, Wu Y, Li L, Ma Y, Shao Z (2007) *Thalassospira xiamenensis* sp. nov. and *Thalassospira profundimaris* sp. nov. Int J Syst Evol Microbiol 57: 316-320.
55. Kodama Y, Stiknowati LI, Ueki A, Ueki K, Watanabe K (2008) *Thalassospira tepidiphila* sp. nov., a polycyclic aromatic hydrocarbon-degrading bacterium isolated from seawater. Int J Syst Evol Microbiol 58: 711-715.
56. Zhao B, Wang H, Li R, Mao X (2010) *Thalassospira xianhensis* sp. nov., a polycyclic aromatic hydrocarbon-degrading marine bacterium. Int J Syst Evol Microbiol 60: 1125-1129.
57. Shi BH, Arunpairojana V, Palakawong S, Yokota A (2002) *Tistrella mobilis* gen nov, sp nov, a novel polyhydroxyalkanoate-producing bacterium belonging to alpha-Proteobacteria. J Gen Appl Microbiol 48: 335-343.