

**Table S1.** Phylogenetic affiliations of 16S rRNA gene clones obtained from the root of Japanese loosestrife

RFLP Group	Representative clone	Clone number	Authentic species (Accession No.)	Identity (%)	Phylum (Class)	Length (bp)
<u>1</u>	JL-C5	5	<i>Hyphomicrobium facile</i> subsp. <i>tolerans</i> (Y14311)	92.90	Proteobacteria (Alpha)	704
<u>2</u>	JL-C59	1	<i>Poalibacter uvarum</i> (AB548216)	90.64	Proteobacteria (Gamma)	716
<u>3</u>	JL-C39	3	<i>Ferruginibacter lapsinanis</i> (FJ177532)	96.08	Bacteroidetes	740
<u>4</u>	JL-C49	9	<i>Labrys methylaminiphilus</i> (AY766152)	92.87	Proteobacteria (Alpha)	631
<u>5</u>	JL-C41	7	<i>Tepidamorphus gemmatus</i> (GU187912)	91.16	Proteobacteria (Alpha)	735
<u>6</u>	JL-C45	2	<i>Hyphomicrobium hollandicum</i> (Y14303)	91.59	Proteobacteria (Alpha)	750
<u>7</u>	JL-C56	3	<i>Methylophilus leisingeri</i> (AF250333)	95.58	Proteobacteria (Beta)	636
<u>8</u>	JL-C65	1	<i>Methylotenera versatilis</i> (CP002056)	97.01	Proteobacteria (Beta)	737
<u>9</u>	JL-C63	1	<i>Rubrivivax gelatinosus</i> (D16213)	97.76	Proteobacteria (Beta)	715
<u>10</u>	JL-C9	3	<i>Azohydromonas lata</i> (D88007)	97.80	Proteobacteria (Beta)	636
<u>11</u>	JL-C98	2	<i>Rhizobacter fulvus</i> (AB245356)	99.03	Proteobacteria (Beta)	720
<u>12</u>	JL-C71	1	<i>Nitrosospira lacus</i> (CAUA01000011)	90.51	Proteobacteria (Beta)	728
<u>13</u>	JL-C73	2	<i>Paludibaculum fermentans</i> (KJ461654)	90.36	Acidobacteria	726
<u>14</u>	JL-C74	1	<i>Blastobacter capsulatus</i> (X73042)	98.20	Proteobacteria (Alpha)	724
<u>15</u>	JL-C7	4	<i>Phreatobacter oligotrophus</i> (HE616165)	95.60	Proteobacteria (Alpha)	637
<u>16</u>	JL-C11	3	<i>Novosphingobium lentum</i> (AJ303009)	98.57	Proteobacteria (Alpha)	631
<u>17</u>	JL-C104	1	<i>Bdellovibrio bacteriovorus</i> (BX842601)	93.89	Proteobacteria (Delta)	720
<u>18</u>	JL-C12	2	<i>Bradyrhizobium lablabi</i> (GU433448)	100	Proteobacteria (Alpha)	638
<u>19</u>	JL-C83	2	<i>Hyphomicrobium facile</i> subsp. <i>tolerans</i> (Y14311)	96.50	Proteobacteria (Alpha)	742
<u>20</u>	JL-C6	2	<i>Hyphomicrobium zavarzini</i> (KB911255)	94.56	Proteobacteria (Alpha)	735
<u>21</u>	JL-C91	1	<i>Sphingorhabdus rigui</i> (HQ436492)	95.99	Proteobacteria (Alpha)	724
<u>22</u>	JL-C69	2	<i>Steroidobacter denitrificans</i> (EF605262)	88.35	Proteobacteria (Gamma)	721
<u>23</u>	JL-C38	5	<i>Thioalbus denitrificans</i> (EU837269)	88.85	Proteobacteria (Gamma)	628
<u>24</u>	JL-C87	1	<i>Gimesia maris</i> (ABCE01000043)	86.55	Planctomycetes	715
<u>25</u>	JL-C93	2	<i>Ensifer kostiensis</i> (AM181748)	97.66	Proteobacteria (Alpha)	725
<u>26</u>	JL-C92	1	<i>Aquincola tertiaricarbonis</i> (DQ656489)	96.39	Proteobacteria (Beta)	721
<u>27</u>	JL-C97	1	<i>Ferruginibacter lapsinanis</i> (FJ177532)	96.80	Bacteroidetes	719
<u>28</u>	JL-C17	2	<i>Rhizobium giardinii</i> (ARBG01000149)	97.82	Proteobacteria (Alpha)	734
<u>29</u>	JL-C114	1	<i>Rhizobium endophyticum</i> (EU867317)	99.71	Proteobacteria (Alpha)	684
<u>30</u>	JL-C48	1	<i>Methylobacterium marchantiae</i> (FJ157976)	90.25	Proteobacteria (Alpha)	636
<u>31</u>	JL-C110	2	<i>Portibacter lacus</i> (AB675658)	87.22	Bacteroidetes	713
<u>32</u>	JL-C111	1	<i>Filomicrobium fusiforme</i> (Y14313)	94.58	Proteobacteria (Alpha)	720
<u>33</u>	JL-C106	1	<i>Aciditerrimonas ferrireducens</i> (AB517669)	89.66	Actinobacteria	725
<u>34</u>	JL-C112	1	<i>Hyphomicrobium facile</i> subsp. <i>tolerans</i> (Y14311)	97.79	Proteobacteria (Alpha)	725
<u>35</u>	JL-C117	1	<i>Parasegetibacter terrae</i> (KJ634465)	91.69	Bacteroidetes	698
<u>36</u>	JL-C119	1	<i>Thermogutta hypogea</i> (KC867695)	85.01	Planctomycetes	727
<u>37</u>	JL-C120	1	<i>Gemmatimonas phototrophica</i> (AUXF01000006)	90.73	Gemmatimonadetes	701
<u>38</u>	JL-C29	2	<i>Sphingomonas asaccharolytica</i> (Y09639)	99.20	Proteobacteria (Alpha)	628
<u>39</u>	JL-C115	1	<i>Gemmata obscuriglobus</i> (ABGO01000325)	86.99	Planctomycetes	707
<u>40</u>	JL-C1	4	<i>Hyphomicrobium facile</i> subsp. <i>tolerans</i> (Y14311)	97.23	Proteobacteria (Alpha)	721
<u>41</u>	JL-C3	1	<i>Blastopirellula marina</i> (AANZO1000021)	87.18	Planctomycetes	734
<u>42</u>	JL-C4	1	<i>Altererythrobacter namhicola</i> (FJ935793)	87.47	Proteobacteria (Alpha)	718
<u>43</u>	JL-C13	2	<i>Alsobacter metallidurans</i> (AB231946)	96.95	Proteobacteria (Alpha)	623
<u>44</u>	JL-C18	1	<i>Ochrobactrum rhizosphaerae</i> (AM490632)	87.62	Proteobacteria (Alpha)	719
<u>45</u>	JL-C20	1	<i>Asticcacaulis excentricus</i> (CP002395)	97.30	Proteobacteria (Alpha)	629
<u>46</u>	JL-C54	2	<i>Sphingomonas suberifaciens</i> (FJ796422)	97.33	Proteobacteria (Alpha)	750
<u>47</u>	JL-C16	1	<i>Caldicoprobacter algeriensis</i> (GU216701)	82.20	Acidobacteria	720
<u>48</u>	JL-C23	1	<i>Leptothrix mobilis</i> (X97071)	98.74	Proteobacteria (Beta)	633
<u>49</u>	JL-C24	3	<i>Blastopirellula marina</i> (AANZO1000021)	88.23	Planctomycetes	624
<u>50</u>	JL-C31	1	<i>Caulobacter daechungensis</i> (JX861096)	95.91	Proteobacteria (Alpha)	635
<u>51</u>	JL-C32	1	<i>Arachidicoccus rhizosphaerae</i> (EU672808)	89.42	Bacteroidetes	737
<u>52</u>	JL-C8	2	<i>Thiopfundum lithotrophicum</i> (AB468957)	89.30	Proteobacteria (Gamma)	626
<u>53</u>	JL-C14	1	<i>Haliscomenobacter hydrossis</i> (CP002691)	84.65	Bacteroidetes	749
<u>54</u>	JL-C15	1	<i>Methyloferula stellata</i> (ARWA01000001)	96.90	Proteobacteria (Alpha)	741
<u>55</u>	JL-C21	1	<i>Methylosoma difficile</i> (DQ119050)	92.90	Proteobacteria (Gamma)	635
<u>56</u>	JL-C19	1	<i>Flavitalea populi</i> (HM130561)	95.66	Bacteroidetes	760

**Table S1.** Phylogenetic affiliations of 16S rRNA gene clones obtained from the root of Japanese loosestrife (*continued*)

RFLP Group	Representative clone	Clone number	Authentic species (Accession No.)	Identity (%)	Phylum (Class)	Length (bp)
<u>57</u>	JL-C22	1	<i>Methylophilus leisingeri</i> (AF250333)	94.70	<i>Proteobacteria</i> (Beta)	741
<u>58</u>	JL-C26	1	<i>Denitratisoma oestradiolicum</i> (AY879297)	91.27	<i>Proteobacteria</i> (Beta)	733
<u>59</u>	JL-C27	1	<i>Tepidisphaera mucosa</i> (KM036168)	84.85	<i>Planctomycetes</i>	628
<u>60</u>	JL-C30	1	<i>Methylocapsa aurea</i> (JQKO01000009)	97.70	<i>Proteobacteria</i> (Alpha)	739
<u>61</u>	JL-C37	1	<i>Anaeromyxobacter dehalogenans</i> (CP001359)	84.58	<i>Proteobacteria</i> (Delta)	720
<u>62</u>	JL-C51	1	<i>Methylovirgula ligni</i> (FM252034)	94.13	<i>Proteobacteria</i> (Alpha)	698
<u>63</u>	JL-C52	1	<i>Rubrivivax gelatinosus</i> (D16213)	97.20	<i>Proteobacteria</i> (Beta)	715
<u>64</u>	JL-C64	1	<i>Novosphingobium lentum</i> (AJ303009)	95.98	<i>Proteobacteria</i> (Alpha)	697
<u>65</u>	JL-C72	1	<i>Paludibaculum fermentans</i> (KJ461654)	90.69	<i>Acidobacteria</i>	698
<u>66</u>	JL-C79	1	<i>Nitrospira lacus</i> (CAUA01000011)	91.93	<i>Proteobacteria</i> (Beta)	715
<u>67</u>	JL-C77	1	<i>Amorphus orientalis</i> (FJ998414)	93.79	<i>Proteobacteria</i> (Alpha)	698
<u>68</u>	JL-C88	1	<i>Bdellovibrio bacteriovorus</i> (BX842601)	87.32	<i>Proteobacteria</i> (Delta)	696
<u>69</u>	JL-C90	1	<i>Paludibaculum fermentans</i> (KJ461654)	91.11	<i>Acidobacteria</i>	686
<u>70</u>	JL-C113	1	<i>Zoogloea oleivorans</i> (KF667502)	90.11	<i>Proteobacteria</i> (Beta)	708

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The RFLP group whose sequences showed less than 95% identity with those of authentic species were underlined.

**Table S2.** Isolates and their related authentic species based on the sequence of 16S rRNA gene

RFLP group	STD		DMC-1 week		DMC-2 weeks		DMC-3 weeks		DMC-4 weeks		DFC		Authentic species (Accession No.)	Identity (%)	Phylum (Class)	Length (bp)
	Representative strain	Strain No.	Representative strain	Strain No.	Representative strain	Strain No.	Representative strain	Strain No.	Representative strain	Strain No.	Representative strain	Strain No.				
1	LA-STD1	1							LA-DMC-4W1	4			<i>Pelomonas saccharophila</i> (AB021407)	99.34	<i>Proteobacteria</i> (Beta)	760
2	LA-STD2	1	LA-DMC-1W25	1									<i>Chelatovorus multitrophus</i> (EF457243)	91.31	<i>Proteobacteria</i> (Alpha)	771
3	LA-STD4	3											<i>Devosia albogilva</i> (EF433460)	90.22	<i>Proteobacteria</i> (Alpha)	767
4	LA-STD5	4											<i>Novosphingobium acidiphilum</i> (D16147)	97.90	<i>Proteobacteria</i> (Alpha)	762
5	LA-STD6	3											<i>Tepidamorphus gemmatus</i> (GU187912)	90.96	<i>Proteobacteria</i> (Alpha)	774
6	LA-STD8	1											<i>Hyphomicrobium hollandicum</i> (Y14303)	90.64	<i>Proteobacteria</i> (Alpha)	781
7	LA-STD9	2											<i>Niastella jeongjuensis</i> (DQ244076)	95.06	<i>Bacteroidetes</i>	770
8	LA-STD10	1											<i>Rhizobacter dauci</i> (AB297965)	98.93	<i>Proteobacteria</i> (Beta)	755
9	LA-STD11	3											<i>Leptothrix mobilis</i> (X97071)	96.03	<i>Proteobacteria</i> (Beta)	755
10	LA-STD17	1											<i>Novosphingobium lindaniclasticum</i> (ATHL01000125)	97.80	<i>Proteobacteria</i> (Alpha)	772
11	LA-STD18	1											<i>Hyphomicrobium hollandicum</i> (Y14303)	90.68	<i>Proteobacteria</i> (Alpha)	763
12	LA-STD19	1											<i>Ideonella dechloratans</i> (D16213)	96.99	<i>Proteobacteria</i> (Beta)	768
13	LA-STD20	1											<i>Rubrivivax gelatinosus</i> (D16213)	97.55	<i>Proteobacteria</i> (Beta)	776
14	LA-STD22	1											<i>Asticcacaulis benevestitus</i> (AM087199)	97.81	<i>Proteobacteria</i> (Alpha)	778
15	LA-STD23	2											<i>Hyphomicrobium hollandicum</i> (Y14303)	91.49	<i>Proteobacteria</i> (Alpha)	777
16	LA-STD24	1											<i>Flavitalea populi</i> (HM130561)	93.89	<i>Bacteroidetes</i>	737
17	LA-STD25	1											<i>Opitutus terrae</i> (CP001032)	93.03	<i>Verrucomicrobia</i>	746
18	LA-STD26	1											<i>Niastella populi</i> (EU877262)	92.96	<i>Bacteroidetes</i>	753
19	LA-STD28	1											<i>Aquincola tertiaricarbonis</i> (DQ656489)	96.27	<i>Proteobacteria</i> (Beta)	750
20			LA-DMC-1W1	1	LA-DMC-2W12	3			LA-DMC-4W15	1			<i>Methylophilus rhizosphaerae</i> (EU194887)	98.29	<i>Proteobacteria</i> (Beta)	819
21			LA-DMC-1W2	1									<i>Rhizobium sullae</i> (Y10170)	97.95	<i>Proteobacteria</i> (Alpha)	783
22			LA-DMC-1W4	2									<i>Novosphingobium sediminicola</i> (FJ177534)	97.02	<i>Proteobacteria</i> (Alpha)	739
23			LA-DMC-1W5	1	LA-DMC-2W1	2	LA-DMC-3W9	4					<i>Flavobacterium fontis</i> (JN873147)	98.21	<i>Bacteroidetes</i>	781
24			LA-DMC-1W7	2									<i>Rhizobium rosettiformans</i> (EU781656)	98.49	<i>Proteobacteria</i> (Alpha)	793
25			LA-DMC-1W8	1									<i>Azospirillum doebereineriae</i> (AJ238567)	96.46	<i>Proteobacteria</i> (Alpha)	831
26			LA-DMC-1W9	2									<i>Heliomonas saccharivorans</i> (JX458466)	94.68	<i>Bacteroidetes</i>	790
27			LA-DMC-1W12	1					LA-DMC-4W17	3			<i>Piscinibacter aquaticus</i> (DQ664244)	99.23	<i>Proteobacteria</i> (Beta)	782
28			LA-DMC-1W13	1									<i>Flavobacterium aquidurensense</i> (AM177392)	97.48	<i>Bacteroidetes</i>	794
29			LA-DMC-1W14	1		LA-DMC-3W29	2						<i>Aquincola tertiaricarbonis</i> (DQ656489)	97.96	<i>Proteobacteria</i> (Beta)	792
30			LA-DMC-1W17	1	LA-DMC-2W9	1							<i>Asticcacaulis benevestitus</i> (AQWM01000073)	98.72	<i>Proteobacteria</i> (Alpha)	785
31			LA-DMC-1W15	1									<i>Cystobacter gracilis</i> (DQ768110)	91.74	<i>Proteobacteria</i> (Delta)	873
32			LA-DMC-1W19	1									<i>Phreatobacter oligotrophus</i> (HE616165)	93.55	<i>Proteobacteria</i> (Alpha)	807
33			LA-DMC-1W20	1									<i>Herbaspirillum aquaticum</i> (FJ267649)	99.62	<i>Proteobacteria</i> (Beta)	801
34			LA-DMC-1W21	4	LA-DMC-2W22	4	LA-DMC-3W17	2					<i>Sediminibacterium salmoneum</i> (K1866530)	94.03	<i>Bacteroidetes</i>	737
35			LA-DMC-1W22	1	LA-DMC-2W27	3							<i>Pseudomonas taiwanensis</i> (EU103629)	97.96	<i>Proteobacteria</i> (Gamma)	786
36			LA-DMC-1W23	1									<i>Paucimonas lemoignei</i> (X92554)	92.26	<i>Proteobacteria</i> (Beta)	776
37			LA-DMC-1W26	2	LA-DMC-2W21	1							<i>Luteolibacter pohnpneiensis</i> (KP101281)	94.98	<i>Verrucomicrobia</i>	737
38			LA-DMC-1W27	1	LA-DMC-2W15	1	LA-DMC-3W23	1	LA-DMC-4W29	17			<i>Flectobacillus roseus</i> (EU420062)	99.59	<i>Bacteroidetes</i>	772

**Table S2.** Isolates and their related authentic species based on the sequence of 16S rRNA gene (continued)

RFLP group	STD		DMC-1 week		DMC-2 weeks		DMC-3 weeks		DMC-4 weeks		DFC		Authentic species (Accession No.)	Identity (%)	Phylum (Class)	Length (bp)
	Representative strain	Strain No.	Representative strain	Strain No.	Representative strain	Strain No.	Representative strain	Strain No.	Representative strain	Strain No.	Representative strain	Strain No.				
39			LA-DMC-1W11	1									<i>Novosphingobium aromaticivorans</i> (CP000248)	97.83	<i>Proteobacteria</i> (Alpha)	739
40			LA-DMC-1W24	1									<i>Pseudoduganella violaceinigra</i> (AY376163)	98.24	<i>Proteobacteria</i> (Beta)	738
41			LA-DMC-1W3	1									<i>Bradyrhizobium erythrophlei</i> (KF114645)	99.73	<i>Proteobacteria</i> (Alpha)	740
42					LA-DMC-2W11	1							<i>Ideonella azotifigens</i> (EU542576)	98.12	<i>Proteobacteria</i> (Beta)	747
43					LA-DMC-2W17	3							<i>Pelomonas saccharophila</i> (AB021407)	99.59	<i>Proteobacteria</i> (Beta)	735
44					LA-DMC-2W19	1							<i>Methylophilus flavus</i> (FJ872108)	98.37	<i>Proteobacteria</i> (Beta)	738
45					LA-DMC-2W20	2							<i>Phenylobacterium conjunctum</i> (AJ227767)	97.97	<i>Proteobacteria</i> (Alpha)	738
46					LA-DMC-2W23	1							<i>Alsobacter metallidurans</i> (AB231946)	96.34	<i>Proteobacteria</i> (Alpha)	738
47					LA-DMC-2W26	2							<i>Fimbriimonas ginsengisoli</i> (CP002763)	92.11	<i>Armatimonadetes</i>	1292
48					LA-DMC-2W4	1							<i>Flectobacillus roseus</i> (EU420062)	99.59	<i>Bacteroidetes</i>	737
49					LA-DMC-2W5	1			LA-DMC-4W5	1			<i>Bradyrhizobium erythrophlei</i> (KF114645)	99.87	<i>Proteobacteria</i> (Alpha)	739
50					LA-DMC-2W8	2							<i>Rhizobacter dauci</i> (AB297965)	99.04	<i>Proteobacteria</i> (Beta)	736
51					LA-DMC-2W28	1	LA-DMC-3W26	4					<i>Pelomonas saccharophila</i> (AB021407)	98.12	<i>Proteobacteria</i> (Beta)	750
52							LA-DMC-3W1	1					<i>Flavobacterium fontis</i> (JN873147)	98.37	<i>Bacteroidetes</i>	738
53							LA-DMC-3W4	3					<i>Rhizobium aggregatum</i> (X73041)	99.05	<i>Proteobacteria</i> (Alpha)	738
54							LA-DMC-3W12	1					<i>Methylophilus methylotrophus</i> (AB193724)	98.93	<i>Proteobacteria</i> (Beta)	839
55							LA-DMC-3W11	10	LA-DMC-4W28	1			<i>Pelomonas saccharophila</i> (AB021407)	100	<i>Proteobacteria</i> (Beta)	735
56							LA-DMC-3W14	1					<i>Massilia namucuoensis</i> (JF799985)	97.25	<i>Proteobacteria</i> (Beta)	836
57							LA-DMC-3W19	1					<i>Ideonella azotifigens</i> (EU542576)	98.08	<i>Proteobacteria</i> (Beta)	837
58									LA-DMC-4W6	3			<i>Ideonella dechloratans</i> (X72724)	97.20	<i>Proteobacteria</i> (Beta)	833
59											LA-DFC-4W4	4	<i>Aquicola tertiarycarbonis</i> (DQ656489)	96.95	<i>Proteobacteria</i> (Beta)	822
60											LA-DFC-4W15	1	<i>Herbaspirillum seropedicae</i> (Y10146)	95.54	<i>Proteobacteria</i> (Beta)	740
61											LA-DFC-4W30	25	<i>Aquitalea magnusonii</i> (DQ018117)	99.39	<i>Proteobacteria</i> (Beta)	819
Total		30		30		30		30		30		30				

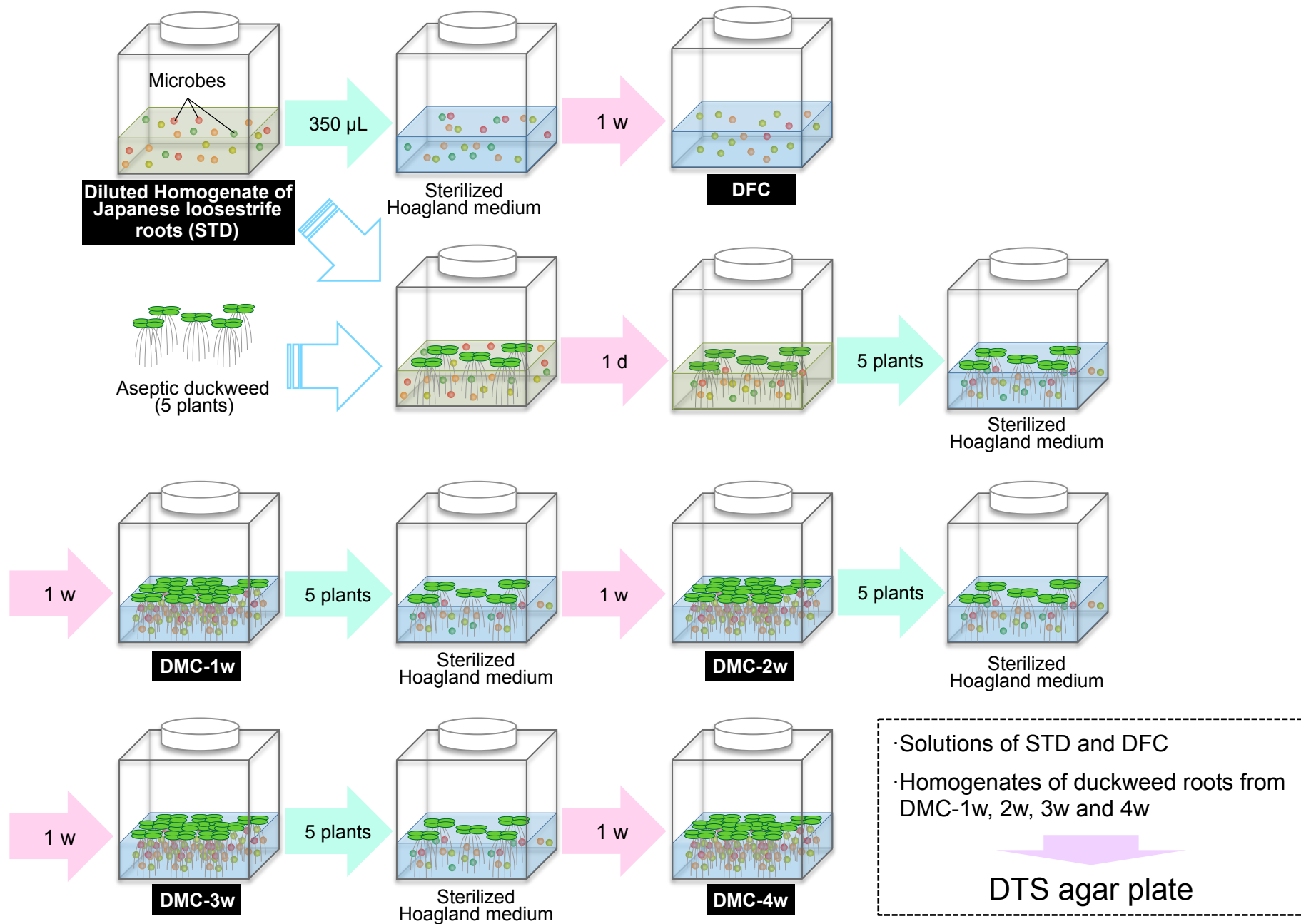


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**Fig. S1.** Schematic image of microbial isolation methods used in the present study.