Supplementary Information

Table S1. List of the predicted bacterial species of three nematode isolates according to a metagenomics analysis: *O. tipulae* (Ot), *S. carpocapsae* Dongrae (Sc-DR), and *S. carpocapsae* Andong (Sc-AD).

Table S2. List of the common bacteria shared by three nematode isolates according to a metagenomics analysis: *O. tipulae* (Ot), *S. carpocapsae* Dongrae (Sc-DR), and *S. carpocapsae* Andong (Sc-AD).

Table S3. List of 32 bacterial species uniquely detected in the IJs of *O. tipulae*.

Fig. S1. A map indicating soil sampling sites in Andong, Korea

Table S1. List of the predicted bacterial species of three nematode isolates according to a metagenomics analysis: *O. tipulae* (Ot), *S. carpocapsae* Dongrae (Sc-DR), and *S. carpocapsae* Andong (Sc-AD).

Bacteria associated with three entomopathogenic nematodes			
	Ot	***Sc-DR***	***Sc-AD***
1	*Achromobacter aegrifaciens*	*Achromobacter aegrifaciens*	*Achromobacter aegrifaciens*
2	*Achromobacter veterisilvae*	*Achromobacter spanius*	*Achromobacter deleyi*
3	*Achromobacter xylosoxidans*	*Achromobacter veterisilvae*	*Achromobacter denitrificans*
4	*Agrobacterium fabacearum*	*Achromobacter xylosoxidans*	*Achromobacter spanius*
5	*Agromyces mediolanus*	*Acidovorax soli*	*Achromobacter veterisilvae*
6	*Anaerobium acetethylicum*	*Acinetobacter guillouiae*	*Achromobacter xylosoxidans*
7	*Anaerocolumna xylanovorans*	*Agrobacterium fabacearum*	*Acidihalobacter aeolianus*
8	*Anaerospora hongkongensis*	*Agromyces mediolanus*	*Acinetobacter guillouiae*
9	*Aquabacterium commune*	*Alcaligenes faecalis*	*Acinetobacter modestus*
10	*Bosea vaviloviae*	*Bacillus coreaensis*	*Acinetobacter soli*
11	*Bradyrhizobium australafricanum*	*Bosea vaviloviae*	*Aestuariivirga litoralis*
12	*Brevundimonas naejangsanensis*	*Brevundimonas naejangsanensis*	*Agrobacterium fabacearum*
13	*Brucella intermedia*	*Brucella pituitosa*	*Agromyces mediolanus*
14	*Brucella pseudogrignonensis*	*Brucella pseudogrignonensis*	*Aidingibacillus halophilus*
15	*Burkholderia vietnamiensis*	*Chitinophaga arvensicola*	*Alcaligenes faecalis*
16	*Camelimonas fluminis*	*Chitinophaga niastensis*	*Alsobacter soli*
17	*Chryseobacterium arthrosphaerae*	*Chryseobacterium balustinum*	*Aminobacter aganoensis*
18	*Chryseobacterium balustinum*	*Chryseobacterium capnotolerans*	*Anaerocolumna chitinilytica*
19	*Chryseobacterium joostei*	*Chryseobacterium mulctrae*	*Anaerocolumna xylanovorans*
20	*Clostridium beijerinckii*	*Cohnella phaseoli*	*Anaerospora hongkongensis*
21	*Clostridium huakuii*	*Comamonas testosteroni*	*Ancylobacter polymorphus*
22	*Cohnella phaseoli*	*Delftia acidovorans*	*Aquabacterium parvum*
23	*Cupriavidus metallidurans*	*Delftia tsuruhatensis*	*Aquihabitans daechungensis*
24	*Delftia litopenaei*	*Devosia chinhatensis*	*Aquincola amnicola*
25	*Delftia tsuruhatensis*	*Enterococcus faecalis*	*Armatimonas rosea*
26	*Eubacterium oxidoreducens*	*Fictibacillus halophilus*	*Asticcacaulis benevestitus*
27	*Flavobacterium edaphi*	*Flavobacterium artemisiae*	*Aurantibacillus circumpalustris*
28	*Flavobacterium yanchengense*	*Flavobacterium chungbukense*	*Aurantimonas marina*
29	*Fluviicola hefeinensis*	*Flavobacterium johnsoniae*	*Aureimonas populi*
30	*Herbiconiux solani*	*Flavobacterium microcysteis*	*Azospirillum doebereinerae*
31	*Kaistia defluvii*	*Fluviicola hefeinensis*	*Azospirillum oryzae*
32	*Klebsiella pneumoniae*	*Gemmata obscuriglobus*	*Bdellovibrio bacteriovorus*
33	*Klebsiella quasipneumoniae*	*Halalkalibacter alkalisediminis*	*Bosea robiniae*
34	*Klebsiella variicola*	*Herbiconiux solani*	*Bosea vaviloviae*
35	*Kocuria turfanensis*	*Herminiimonas saxobsidens*	*Brachybacterium phenoliresistens*
36	*Legionella qingyii*	*Huaxiibacter chinensis*	*Brachybacterium vulturis*
37	*Luteolibacter gellanilyticus*	*Hymenobacter soli*	*Bradyrhizobium australafricanum*

38	*Lysinibacillus boronitolerans*	*Janthinobacterium lividum*	*Bradyrhizobium macuxiense*
39	*Lysinibacillus mangiferihumi*	*Janthinobacterium violaceinigrum*	*Brevibacillus antibioticus*
40	*Methylorubrum populi*	*Kaistia defluvii*	*Brevibacterium sediminis*
41	*Microbacterium aerolatum*	*Klebsiella quasipneumoniae*	*Brucella pseudogrignonensis*
42	*Microbacterium resistens*	*Leclercia adecarboxylata*	*Burkholderia aenigmatica*
43	*Microvirga pudoricolor*	*Leptospira johnsonii*	*Carnobacterium gallinarum*
44	*Mycobacterium numidiamassiliense*	*Leptospira kobayashii*	*Castellaniella denitrificans*
45	*Mycolicibacterium llatzerense*	*Leucobacter iarius*	*Cellvibrio mixtus*
46	*Nubsella zeaxanthinifaciens*	*Lysinibacillus boronitolerans*	*Chelativorans composti*
47	*Ochrobactrum quorumnocens*	*Mesorhizobium terrae*	*Chitinophaga arvensicola*
48	*Paenibacillus agri*	*Metabacillus idriensis*	*Chitinophaga niastensis*
49	*Paenibacillus granivorans*	*Methylorubrum populi*	*Chryseobacterium balustinum*
50	*Parasegetibacter terrae*	*Microbacterium ginsengiterrae*	*Chryseobacterium cucumeris*
51	*Paucibacter oligotrophus*	*Microbacterium maritypicum*	*Chryseobacterium vrystaatense*
52	*Pedobacter nyackensis*	*Mucilaginibacter carri*	*Chthoniobacter flavus*
53	*Pedobacter planticolens*	*Mycobacterium numidiamassiliense*	*Citrobacter bitternis*
54	*Pedobacter polaris*	*Nocardiopsis nikkonensis*	*Clostridioides mangenotii*
55	*Pedobacter solisilvae*	*Ochrobactrum quorumnocens*	*Clostridium intestinale*
56	*Pelomonas saccharophila*	*Paenibacillus agri*	*Clostridium punense*
57	*Pseudomonas aeruginosa*	*Paenibacillus bovis*	*Cohnella phaseoli*
58	*Pseudomonas allii*	*Paenibacillus granivorans*	*Comamonas sediminis*
59	*Pseudomonas arcuscaelestis*	*Paenibacillus mobilis*	*Comamonas testosteroni*
60	*Pseudomonas campi*	*Paenibacillus puernese*	*Curvibacter gracilis*
61	*Pseudomonas protegens*	*Pedobacter duraquae*	*Cutibacterium acnes*
62	*Pseudonocardia alni*	*Pedobacter koreensis*	*Cytophaga hutchinsonii*
63	*Ralstonia pickettii*	*Pedobacter nutrimenti*	*Daejeonella composti*
64	*Rhodococcus qingshengii*	*Pedobacter nyackensis*	*Dechloromonas hortensis*
65	*Serratia marcescens*	*Pedobacter solisilvae*	*Delftia acidovorans*
66	*Serratia nematodiphila*	*Pelomonas saccharophila*	*Delftia tsuruhatensis*
67	*Serratia surfactantfaciens*	*Phyllobacterium zundukense*	*Devosia chinhatensis*
68	*Singulisphaera rosea*	*Planctopirus ephydatiae*	*Devosia insulae*
69	*Sphingobacterium cladoniae*	*Plantibacter auratus*	*Dielma fastidiosa*
70	*Sphingobacterium siyangense*	*Providencia huaxiensis*	*Duganella fentianensis*
71	*Sporomusa acidovorans*	*Providencia rettgeri*	*Duganella rivi*
72	*Stenotrophomonas geniculata*	*Pseudomonas aeruginosa*	*Duganella sacchari*
73	*Taibaiella soli*	*Pseudomonas campi*	*Dyadobacter bucti*
74	*Turicibacter bilis*	*Pseudomonas protegens*	*Ensifer collicola*
75	*Variovorax boronicumulans*	*Pseudomonas qingdaonensis*	*Enterobacter cloacae*
76	*Variovorax guangxiensis*	*Pseudomonas spelaei*	*Enterobacter quasihormaechei*
77	*Variovorax robiniae*	*Pseudonocardia alni*	*Enterococcus saccharolyticus*
78	*Xenorhabdus nematophila*	*Rhodococcus qingshengii*	*Enterococcus wangshanyuanii*
79		*Serratia marcescens*	*Ferruginibacter alkalilentus*
80		*Serratia nematodiphila*	*Fimbriimonas ginsengisoli*
81		*Serratia surfactantfaciens*	*Flavipsychrobacter stenotrophus*

82		*Sphingobacterium cladoniae*	*Flavobacterium edaphi*
83		*Sphingobacterium siyangense*	*Franconibacter pulveris*
84		*Sphingobacterium spiritivorum*	*Galactobacter valiniphilus*
85		*Sphingomonas alpina*	*Gemmata obscuriglobus*
86		*Stenotrophomonas geniculata*	*Glutamicibacter arilaitensis*
87		*Stenotrophomonas maltophilia*	*Glutamicibacter halophytocola*
88		*Stenotrophomonas pavanii*	*Glutamicibacter soli*
89		*Stenotrophomonas rhizophila*	*Herbiconiux solani*
90		*Variovorax boronicumulans*	*Herminiimonas saxobsidens*
91		*Xenorhabdus cabanillasii*	*Janthinobacterium lividum*
92		*Xenorhabdus magdalenensis*	*Janthinobacterium violaceinigrum*
93		*Xenorhabdus nematophila*	*Kaistia defluvii*
94			*Kaistia hirudinis*
95			*Klebsiella variicola*
96			*Labilithrix luteola*
97			*Labrys neptuniae*
98			*Lacunisphaera anatis*
99			*Legionella longbeachae*
100			*Leptospira johnsonii*
101			*Leucobacter aerolatus*
102			*Leucobacter iarius*
103			*Leucobacter zeae*
104			*Luteolibacter luojiensis*
105			*Lysinibacillus boronitolerans*
106			*Lysinibacillus mangiferihumi*
107			*Lysinibacillus telephonicus*
108			*Maioricimonas rarisocia*
109			*Mammaliicoccus sciuri*
110			*Mesorhizobium terrae*
111			*Methylobacillus glycogenes*
112			*Methylobacterium mesophilicum*
113			*Methylobacterium terrae*
114			*Methyloferula stellata*
115			*Methylophilus rhizosphaerae*
116			*Methylorubrum populi*
117			*Microbacterium algeriense*
118			*Microbacterium caowuchunii*
119			*Microbacterium maritypicum*
120			*Microbacterium mitrae*
121			*Microbacterium tumbae*
122			*Microbacterium xylanilyticum*
123			*Mitsuaria noduli*
124			*Mycolicibacterium montmartrense*
125			*Natranaerovirga pectinivora*
126			*Ochrobactrum quorumnocens*

127			*Paenacidovorax monticola*
128			*Paenibacillus agri*
129			*Paenibacillus cavernae*
130			*Paenibacillus ginsengarvi*
131			*Paenibacillus granivorans*
132			*Paenibacillus kobensis*
133			*Paenibacillus larvae*
134			*Paenibacillus senegalensis*
135			*Paenibacillus yonginensis*
136			*Paludisphaera borealis*
137			*Paucibacter oligotrophus*
138			*Pedobacter chitinilyticus*
139			*Pedobacter planticolens*
140			*Pedobacter schmidteae*
141			*Pedobacter solisilvae*
142			*Pelomonas aquatica*
143			*Pelomonas puraquae*
144			*Pelomonas saccharophila*
145			*Pelosinus defluvii*
146			*Phenylobacterium koreense*
147			*Phenylobacterium muchangponense*
148			*Phreatobacter cathodiphilus*
149			*Prosthecobacter fluviatilis*
150			*Providencia huaxiensis*
151			*Providencia rettgeri*
152			*Pseudobdellovibrio exovorus*
153			*Pseudochrobactrum algeriensis*
154			*Pseudoflavitalea soli*
155			*Pseudomonas aeruginosa*
156			*Pseudomonas protegens*
157			*Pseudomonas putida*
158			*Pseudomonas qingdaonensis*
159			*Pseudomonas veronii*
160			*Pseudonocardia alni*
161			*Pseudorhodoferax aquiterrae*
162			*Pseudoxanthobacter soli*
163			*Psychrosinus fermentans*
164			*Reyranella aquatilis*
165			*Reyranella massiliensis*
166			*Rhizobium aquaticum*
167			*Rhizobium etli*
168			*Rhizomicrobium electricum*
169			*Rhodococcus qingshengii*
170			*Rhodoferax ferrireducens*
171			*Roseateles asaccharophilus*

172			*Ruminiclostridium cellobioparum*
173			*Schlesneria paludicola*
174			*Serratia marcescens*
175			*Serratia nematodiphila*
176			*Serratia surfactantfaciens*
177			*Shinella zoogloeoides*
178			*Singulisphaera rosea*
179			*Siphonobacter aquaeclarae*
180			*Sphingobacterium ginsenosidimutans*
181			*Sphingobacterium mucilaginosum*
182			*Sphingobacterium siyangense*
183			*Sphingobacterium spiritivorum*
184			*Sphingobium xenophagum*
185			*Sphingomonas kyeonggiensis*
186			*Sphingomonas mali*
187			*Sphingopyxis macrogoltabida*
188			*Staphylococcus casei*
189			*Stenotrophomonas acidaminiphila*
190			*Stenotrophomonas geniculata*
191			*Stenotrophomonas pavanii*
192			*Streptococcus symci*
193			*Thermoflexibacter ruber*
194			*Tsukamurella hominis*
195			*Undibacterium hunanense*
196			*Variovorax boronicumulans*
197			*Variovorax paradoxus*
198			*Williamsia spongiae*
199			*Xanthobacter flavus*
200			*Xenorhabdus doucetiae*
201			*Xenorhabdus nematophila*
202			*Zoogloea resiniphila*

Table S2. List of the common bacteria shared by three nematode isolates according to a metagenomics analysis: *O. tipulae* (Ot), *S. carpocapsae* Dongrae (Sc-DR), and *S. carpocapsae* Andong (Sc-AD).

1	*Achromobacter aegrifaciens*
2	*Achromobacter veterisilvae*
3	*Achromobacter xylosoxidans*
4	*Agrobacterium fabacearum*
5	*Agromyces mediolanus*
6	*Bosea vaviloviae*
7	*Brucella pseudogrignonensis*
8	*Chryseobacterium balustinum*
9	*Cohnella phaseoli*
10	*Delftia tsuruhatensis*
11	*Herbiconiux solani*
12	*Kaistia defluvii*
13	*Lysinibacillus boronitolerans*
14	*Methylorubrum populi*
15	*Ochrobactrum quorumnocens*
16	*Paenibacillus agri*
17	*Paenibacillus granivorans*
18	*Pedobacter solisilvae*
19	*Pelomonas saccharophila*
20	*Pseudomonas aeruginosa*
21	*Pseudomonas protegens*
22	*Pseudonocardia alni*
23	*Rhodococcus qingshengii*
24	*Serratia marcescens*
25	*Serratia nematodiphila*
26	*Serratia surfactantfaciens*
27	*Sphingobacterium siyangense*
28	*Stenotrophomonas geniculata*
29	*Variovorax boronicumulans*
30	*Xenorhabdus nematophila*

Table S3. List of 32 bacterial species uniquely detected in the IJs of *O. tipulae*.

1	*Anaerobium acetethylicum*
2	*Aquabacterium commune*
3	*Brucella intermedia*
4	*Burkholderia vietnamiensis*
5	*Camelimonas fluminis*
6	*Chryseobacterium arthrosphaerae*
7	*Chryseobacterium joostei*
8	*Clostridium beijerinckii*
9	*Clostridium huakuii*
10	*Cupriavidus metallidurans*
11	*Delftia litopenaei*
12	*Eubacterium oxidoreducens*
13	*Flavobacterium yanchengense*
14	*Klebsiella pneumoniae*
15	*Kocuria turfanensis*
16	*Legionella qingyii*
17	*Luteolibacter gellanilyticus*
18	*Microbacterium aerolatum*
19	*Microbacterium resistens*
20	*Microvirga pudoricolor*
21	*Mycolicibacterium llatzerense*
22	*Nubsella zeaxanthinifaciens*
23	*Parasegetibacter terrae*
24	*Pedobacter polaris*
25	*Pseudomonas allii*
26	*Pseudomonas arcuscaelestis*
27	*Ralstonia pickettii*
28	*Sporomusa acidovorans*
29	*Taibaiella soli*
30	*Turicibacter bilis*
31	*Variovorax guangxiensis*
32	*Variovorax robiniae*


SANGA-DONG
상아동
Andong
안동시
SEOKDONG-DONG
석동동
SEONGGOK-DONG
성곡동
YONGSANG-DONG
용상동
SONGCHEON-DONG
송천동
JEONGSANG-DONG
정상동
YS
SC1
SC2
2.72 km
3.26 km
1.43 km
34
35
ICHEON-RI
이천리
SINSEOK-RI
신석리
GUMI-RI
구미리

Fig. S1