Supporting information

The utility of mtDNA and rDNA for barcoding and phylogeny of plant-parasitic nematodes from Longidoridae (Nematoda, Enoplea)

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Table S1. Taxa studied for dagger and needle nematodes species of the family Longidoridae and sequences of cytochrome *c* oxidase subunit 1 (*coxI*) used in this study. For new sequences, species identifications were based on morphology and barcoding using D2-D3 expansion segments of 28S rDNA[1].

	Nematode species	Sample code	Locality	Host plant	GenBank accession numbers	
					28S	*coxI*
	Genus ***Xiphinema*** spp.					
1.	***Xiphinema adenohystherum***	SORIA	Arévalo de la Sierra, Soria province, Spain	european holly	KC567164	KY816588
	Xiphinema adenohystherum	ALMAG	Almagro, Ciudad Real province, Spain	wild olive	*[2]	KY816589
	Xiphinema adenohystherum	AR086	Prado del Rey, Cádiz province, Spain	wild olive	*	KY816590
	Xiphinema adenohystherum	AR078	Almodóvar, Córdoba province, Spain	wild olive	*	KY816591
	Xiphinema adenohystherum	IASNB	Jerez de la Frontera, Cádiz province, Spain	wild olive	*	KY816592
2.	***Xiphinema americanum***	-	USA	orchard fruit	-	AM086693
	Xiphinema americanum	CD48	California, USA	plum	KX263169	KX263063
	Xiphinema americanum	CD82b	California, USA	grape	KX263145	KX263064
	Xiphinema americanum	CD100	California, USA	grape	KX263151	KX263062
	Xiphinema americanum	CD1074	Georgia, USA	-	KX263168	KX263050
	Xiphinema americanum	CD1078	Texas, USA	-	KX263173	KX263054
	Xiphinema americanum	CD1244	California, USA	orange	KX263171	KX263053
	Xiphinema americanum	XA34	California, USA	walnut	KX263172	KX263059
	Xiphinema americanum	XA70	California, USA	cherry	KX263146	KX263047
	Xiphinema americanum	CD1816a	Stavropol Krai, Kislovodsk, Russia	cherry	KX263179	KX263106
	Xiphinema americanum	CD1816b	Stavropol Krai, Kislovodsk, Russia	cherry	KX263179	KX263107
3.	***Xiphinema andalusiense***	ARO93	Belmez ,Córdoba, Spain	wild olive	KX244884	KY816593
	Xiphinema andalusiense	00419	Andújar, Jaén, Spain	wild olive	KX244885	KY816594
	Xiphinema andalusiense	AR108	Villaviciosa ,Córdoba, Spain	wild olive	KX244888	KY816595
4.	***Xiphinema astaregiense***	J0174	Jerez de la Frontera, Cádiz province, Spain	sunflower	KP268955	KP268977
5.	***Xiphinema baetica***	LOMAS	Hinojos, Huelva province, Spain	stone pine	KC567165	KY816596
	Xiphinema baetica	HATRA	Villamanrique de la Condesa, Huelva, Spain	cork oak	KC567166	KY816597
6.	***Xiphinema bakeri***	CD852	California, USA	-	KF292277	KF292305
	Xiphinema bakeri	CD840	California, USA	*Salix* sp.	KF292278	KF292306
7.	***Xiphinema belmontense***	MOUCH	Merza, Pontevedra province, Spain	chestnut	KC567171	KY816598
8.	***Xiphinema brevicolle***	-	Brazil	*Coffeae arabica*	-[3]	AM086707
	Xiphinema brevicolle	-	Breclav, Czech Republic	grapevine	HM163209	HM163206
	Xiphinema brevicolle	CD1816	Stavropol Krai, Kislovodsk, Russia	cherry	KX263179	KX263106
	Xiphinema brevicolle	CD1816	Stavropol Krai, Kislovodsk, Russia	cherry	KX263179	KX263107
	Xiphinema brevicolle	-	Chiba, Yachimata, Japan	*Ilex crenata*	-	AB675670
	Xiphinema brevicolle	-	Chiba, Yachimata, Japan	*Ilex crenata*	-	AB675672
	Xiphinema brevicolle	-	Chiba, Yachimata, Japan	*Ilex crenata*	-	AB675673

	Nematode species	Sample code	Locality	Host plant	GenBank accession numbers	
	Xiphinema brevicolle	-	Chiba, Sosa, Japan	*Ilex crenata*	-	AB604337
	Xiphinema brevicolle	-	Chiba, Togane, Japan	*Ilex crenata*	-	AB655671
	Xiphinema brevicolle	-	Chiba, Yachimata, Japan	*Ilex crenata*	-	AB675669
9.	***Xiphinema brevisicum***	CARIX	Merza, Pontevedra province, Spain	oak	KP268962	KP268979
10.	***Xiphinema browni***	-	Moca, Slovakia	grapevine	-	KU250158
	Xiphinema browni	-	Slovakia	grapevine	-	AM086708
	Xiphinema browni	NSB1	Kurdejov, Czech Republic	grapevine	KU250151	GU222424
11.	***Xiphinema cadavalense***	ST077	Espiel, Córdoba province, Spain	cultivated olive	KX244932	KY816599
12.	***Xiphinema californicum***	CD3	California, USA	cherry	KX263143	KX263071
	Xiphinema californicum	CD231	California, USA	lemon	KX263166	KX263067
	Xiphinema californicum	CD1247	California, USA	orange	KX263156	KX263073
	Xiphinema californicum	CD1818	California, USA	*Acer* sp.	KX263153	KX263069
	Xiphinema californicum	XA4	California, USA	peach	KX263165	KX263077
	Xiphinema californicum	XA5	California, USA	plum	KX263162	KX263078
	Xiphinema californicum	XA8	California, USA	plum	KX263164	KX263079
	Xiphinema californicum	XA42	California, USA	walnut	KX263159	KX263081
	Xiphinema californicum	XA44	California, USA	cherry	-	KX263080
13.	***Xiphinema celtiense***	AR083	Adamuz, Córdoba province, Spain	wild olive	KX244889	KY816600
	Xiphinema celtiense	AR082	Adamuz, Córdoba province, Spain	wild olive	KX244890	KY816601
14.	***Xiphinema* cf. *americanum***	-	Florida, USA	-	-	AM086689
	Xiphinema* cf. *americanum	-	South Africa	-	-	AM086690
	Xiphinema* cf. *americanum	-	Florida, USA	-	-	AM086691
	Xiphinema* cf. *americanum	-	Nepal	-	-	AM086704
15.	***Xiphinema chambersi***	-	Jekyll Island, Georgia USA	*Quercus virginiana*	-	KU764412
	Xiphinema chambersi	-	Jekyll Island, Georgia USA	*Quercus virginiana*	-	KU764413
	Xiphinema chambersi	-	Jekyll Island, Georgia USA	*Quercus virginiana*	-	KU764414
	Xiphinema chambersi	-	Jekyll Island, Georgia USA	*Quercus virginiana*	-	KU764415
	Xiphinema chambersi	-	Jekyll Island, Georgia USA	*Quercus virginiana*	-	KU764416
	Xiphinema chambersi	-	Jekyll Island, Georgia USA	*Quercus virginiana*	-	KU764417
	Xiphinema chambersi	-	Jekyll Island, Georgia USA	*Quercus virginiana*	-	KU764418
	Xiphinema chambersi	-	Jekyll Island, Georgia USA	*Quercus virginiana*	-	KU764419
16.	***Xiphinema cohni***	J0126	Puerto de Sta. María, Cádiz province, Spain	grapevine	KC567173	KY816602
17.	***Xiphinema conurum***	ST45V	Sorbas, Almería province, Spain	cultivated olive	KX244892	KY816603
18.	***Xiphinema costaricense***	ACC86	Guayabo. Turrialba. Cartago	forest	KX931056	KY816604
	Xiphinema costaricense	ACC46	Santa Rosa. Limón. Limón	cocoa	KX931057	KY816605
19.	***Xiphinema coxi europaeum***	AR020	Hinojos, Huelva province, Spain	wild olive	KC567174	KY816606
	Xiphinema coxi europaeum	H0027	Almonte, Huelva province, Spain	cork oak	KC567177	KY816607
20.	***Xiphinema cretense***	AR039	Hersonisos province	wild olive	KJ802878	KY816608
21.	***Xiphinema dentatum***	-	Silnicna, Czech Republic	Forest soil	EU781538	EU781537

Nematode species	Sample code	Locality	Host plant	GenBank accession numbers	
22. ***Xiphinema diffusum***	-	Australia	Grapevine	-	AM086700
Xiphinema diffusum	-	Brazil	Orchard fruit	-	AM086699
Xiphinema diffusum	-	China	Unknown	-	AM086701
Xiphinema diffusum	-	Brazil	Unknown	-	AM086698
23. ***Xiphinema diversicaudatum***	-	Bile Podoli, Czech Republic	sour cherry	-	GU222421
Xiphinema diversicaudatum	CD1311	Varenikovskaya, Russia	*Salix alba*	-	KF292294
Xiphinema diversicaudatum	CD1308	Saratov, Russia	*Acer negundo* L.	KF292279	KF292298
Xiphinema diversicaudatum	CD1283	Moscow region, Serpukhov, Russia	*Salix alba* L.	KF292280	KF292297
Xiphinema diversicaudatum	CD1335	Moscow region, Serpukhov, Russia	*Populus nigra L.*	-	KF292296
Xiphinema diversicaudatum	CD1330	Moscow region, Klyazma, Russia	*Ulmus glabra* Huds	-	KF292301
Xiphinema diversicaudatum	CD1331	Voronezh region, Ramon, Russia	*S. alba*	-	KF292295
Xiphinema diversicaudatum	CD1309	Voronezh region, Ramon, Russia	*Alnus glutinosa* L.	-	KF292302
Xiphinema diversicaudatum	CD1338	Krasnodar Territory, Sochi, Russia	*Citrus unshiu* Marc.	-	KF292287
Xiphinema diversicaudatum	CD1310	Krasnodar Territory, Sochi, Russia	*Medicago lupulina* L.	-	KF292292
Xiphinema diversicaudatum	CD1332	Krasnodar Territory, Sochi, Russia	*Urtica dioica* L.	-	KF292286
Xiphinema diversicaudatum	CD1312	Krasnodar Territory, Sukko, Russia	*Sambucus nigra* L.	-	KF292284
Xiphinema diversicaudatum	CD1313	Krasnodar Territory, Sukko, Russia	*Corylus avellana* L.	-	KF292290
Xiphinema diversicaudatum	CD1336	Krasnodar Territory, Sukko, Russia	*P. alba*	-	KF292288
Xiphinema diversicaudatum	CD1348	Predela, Bulgaria	Meadow plants	-	KF292303
Xiphinema diversicaudatum	CD1349	Bachevo, Perivol, Bulgaria	*Picea abies* L.	-	KF292304
24. ***Xiphinema duriense***	ST02C	Gibraleón, Huelva province, Spain	cultivated olive	KP268963	KY816609
25. ***Xiphinema floridae***	-	USA	Orchard fruit	-	AM086696
Xiphinema floridae	-	USA	Orchard fruit	-	AM086697
26. ***Xiphinema georgianum***	-	USA	Orchard fruit	-	AM086695
27. ***Xiphinema gersoni***	H0059	Almonte, Huelva province, Spain	eucalyptus	KC567180	KY816610
28. ***Xiphinema herakliense***	OLEA8	Vathy Rema, Crete Island , Greece	wild olive	KM586345	KY816611
Xiphinema herakliense	OLEA17	Agiofarago, Crete Island , Greece	wild olive	KM58636	KY816612
Xiphinema herakliense	OLE18	Agiofarago, Crete Island , Greece	wild olive	KM58639	KY816613
29. ***Xiphinema hispanum***	00419	Andújar, Jaén province, Spain	wild olive	GU725074	KY816614
30. ***Xiphinema hispidum***	AR098	Bollullos par del Condado, Huelva province, Spain	grapevine	KC567181	KY816615
Xiphinema hispidum	H0026	Rociana del Condado, Huelva province, Spain	grapevine	HM921366	KY816616
31. ***Xiphinema inaequale***	-	Baijnath. India	*Terminalia bellirica*	-	HM163207
32. ***Xiphinema incertum***	-	Jerez de la Frontera, Cádiz province, Spain	-	-	JQ990058
33. ***Xiphinema incognitum***	-	China	litchi	-	AM086705
Xiphinema incognitum	-	China	litchi	-	AM086706
34. ***Xiphinema index***	IN393	Moriles, Córdoba province, Spain	grapevine	HM921398	HM921380
Xiphinema index	IN116	Montemayor, Córdoba province, Spain	grapevine	HM921399	HM921381
Xiphinema index	IN116	Montemayor, Córdoba province, Spain	grapevine	HM921400	HM921382
Xiphinema index	INAUL	Aulaga, Córdoba province, Spain	grapevine	HM921401	HM921383

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	Xiphinema index	IN499	Jerez de la Fra., Cádiz province, Spain	grapevine	HM921402	HM921384
	Xiphinema index	IN474	Rociana, Huelva province, Spain	grapevine	HM921403	HM921385
	Xiphinema index	INNR4	Parteolla, Sardinia province, Italy	grapevine	HM921404	HM921386
	Xiphinema index	INVRM	Trexenta, Sardinia province, Italy	grapevine	HM921405	HM921387
	Xiphinema index	INVRM	Trexenta, Sardinia province, Italy	grapevine	HM921406	HM921388
35.	***Xiphinema insigne***	MIYA1	Miyazaki, Japan	*Prunus* sp.	*	KY816617
36.	***Xiphinema israeliae***	AR013	Roufas province, Greece	wild olive	KJ802883	KY816618
37.	***Xiphinema italiae***	AR041	Las Tres Villas,Almería province, Spain	wild olive	KX244911	KY816619
	Xiphinema italiae	AR091	Puerto Real, Cádiz province, Spain	wild olive	KX244912	KY816620
	Xiphinema italiae	TUNIS	Sbitla, Kasserine, Tunisia	cultivated olive	KX062674	KY816621
	Xiphinema italiae	TUN11	Sbiba, Kasserine, Tunisia	cultivated olive	KX062677	KY816622
	Xiphinema italiae	APUL	Bari, Bari province, Italy	grapevine	*	KY816623
	Xiphinema italiae	-	Moca, Slovakia	grapevine	FJ713153	FJ713151
38.	***Xiphinema iznajarense***	JAO25	Iznájar , Córdoba province, Spain	cultivated olive	KX244892	KY816624
39.	***Xiphinema krugi***	ACC47	Sucre, Ciudad Quesada, Alajuela	Robust star-grass	KX931061	KY816625
	Xiphinema krugi	ACC13	Santa Gertrudis. Grecia. Alajuela	Sugar-cane	KX931060	KY816626
40.	***Xiphinema lambertii***	-	Baijnath, India	*Terminalia bellirica*	-	HM163208
41.	***Xiphinema luci***	IAGRQ	Benacazón, Sevilla province, Spain	rose	KP268965	KY816627
42.	***Xiphinema lupini***	H0050	Hinojos, Huelva province, Spain	grapevine	KC567183	KY816628
	Xiphinema lupini	388GD	Bollullos par del Condado, Huelva province, Spain	grapevine	HM921352	KY816629
	Xiphinema lupini	388GD	Bollullos par del Condado, Huelva province, Spain	grapevine	*	KY816630
43.	***Xiphinema macroacanthum***	ITAL	Brindisi, Italy	cultivated olive	*	KY816631
44.	***Xiphinema macrodora***	AR097	Santa Mª de Trassierra, Córdoba, Spain	wild olive	KU171044	KY816632
45.	***Xiphinema madeirense***	AR031	Tarifa, Cádiz province, Spain	wild olive	KP268966	KP268978
46.	***Xiphinema mengibarense***	O3C04	Mengíbar, Jaen province, Spain	Cultivated olive	KX2448893	KY816633
	Xiphinema mengibarense	O30V5	Mengíbar, Jaen province, Spain	Cultivated olive	KX2448894	KY816634
47.	***Xiphinema meridianum***	11R16	Sbitla, Kasserine, Tunisia	Cultivated olive	KX062678	KY816635
48.	***Xiphinema nuragicum***	ST012	Espejo, Córdoba province, Spain	grapevine	*	KY816636
	Xiphinema nuragicum	AR054	Medina Sidonia, Cádiz province, Spain	wild olive	*	KY816637
	Xiphinema nuragicum	ST106	La Puebla de los Infantes, Sevilla province, Spain	cultivated olive	*	KY816638
	Xiphinema nuragicum	JAO28	Antequera, Málaga province, Spain	cultivated olive	*	KY816639
	Xiphinema nuragicum	AR113	Alcolea, Córdoba province, Spain	wild olive	*	KY816640
49.	***Xiphinema opisthohysterum***	AR031	Tarifa, Cádiz province, Spain	wild olive	KP268967	KY816641
	Xiphinema opisthohysterum	00418	Andújar, Jaén province, Spain	grasses	JQ990040	KY816642
	Xiphinema opisthohysterum	-	Almonte, Huelva province, Spain	grapevine	JQ990032	JQ990053
	Xiphinema opisthohysterum	-	Andújar, Jaen province, Spain	grasses	JQ990040	JQ990054
50.	***Xiphinema pachtaicum***	PAJ40	Jerez de la Frontera, Cádiz province, Spain	grapevine	JQ990033	JQ990057
	Xiphinema pachtaicum	PAIAS	Córdoba, Córdoba province, Spain.	grapevine	HM921389	HM921369
	Xiphinema pachtaicum	PA393	Moriles, Córdoba province, Spain.	grapevine	HM921390	HM921370

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	Xiphinema pachtaicum	PA393	Moriles, Córdoba province, Spain.	grapevine	HM921391	HM921371
	Xiphinema pachtaicum	PAFRI	Frigiliana, Málaga province, Spain.	grapevine	HM921392	HM921372
	Xiphinema pachtaicum	PA401	Jerez de la Fra., Cádiz province, Spain	grapevine	*	HM921373
	Xiphinema pachtaicum	PA401	Jerez de la Fra., Cádiz province, Spain	grapevine	HM921393	HM921374
	Xiphinema pachtaicum	PA500	Jerez de la Fra., Cádiz province, Spain	grapevine	HM921394	HM921375
	Xiphinema pachtaicum	PA506	Trebujena, Cádiz province, Spain	grapevine	HM921395	HM921376
	Xiphinema pachtaicum	PA484	Bollullos par del Condado, Huelva province, Spain	grapevine	HM921396	HM921378
	Xiphinema pachtaicum	PARIO	La Guardia, Logroño province, Spain	grapevine	HM921397	HM921379
	Xiphinema pachtaicum	V1	Palermo, Sicily, Italy	grapevine	KX263184	KX263108
	Xiphinema pachtaicum	CD230	California, USA	lemon	KX263181	KX263109
	Xiphinema pachtaicum	XA69	California, USA	plum	KX263183	KX263110
	Xiphinema pachtaicum	CD49	California, USA	plum	KX263182	KX263111
	Xiphinema pachtaicum	V2	Palermo, Sicily, Italy	olive	-	KX263112
	Xiphinema pachtaicum	V3	Palermo, Sicily, Italy	pomegranate	-	KX263115
51.	***Xiphinema parabrevicolle***	XBRIN-	Pantanagianni, Italy	Lentisc and marram grass	JQ990042	JQ990059
52.	***Xiphinema parapachydermum***	H0018	Hinojos, Huelva province, Spain	grapevine	JQ990036	JQ990056
53.	***Xiphinema parasimile***	-	Vinogradets, Bulgaria	grapevine	-	KU250159
54.	***Xiphinema peruvianum***	-	Brazil	Coffeae Arabica	-	AM086712
	Xiphinema peruvianum	-	Georgia, USA	Orchard fruit	-	AM086692
55.	***Xiphinema pseudocoxi***	AR095	Alcaracejos, Córdoba province, Spain	wild olive	KX244915	KY816643
56.	***Xiphinema pyrenaicum***	ESMEN	Cahors, Quercy province, France	grapevine	GU725073	KY816644
57.	***Xiphinema rivesi***	CASLO	Castillo de Locubín, Jaén province, Spain	cherry tree	JQ990037	KY816645
	Xiphinema rivesi	00518	Moriles, Córdoba province, Spain	grapevine	HM921357	KY816646
	Xiphinema rivesi	ALGUA	Alcala de Guadaira, Sevilla Province, Spain	grapevine	JQ990039	JQ990060
	Xiphinema rivesi	CD1165	Minnesota, Brooklyn Park, USA	grasses and shrubs	KX263176	KX263100
	Xiphinema rivesi	CD1715	California, USA	-	KX263140	KX263104
	Xiphinema rivesi					KX263102
	Xiphinema rivesi					KX263103
58.	***Xiphinema robbinsi***	12R28	Sbitla, Kasserine, Tunisia	cultivated olive	KX062683	KY816647
59.	***Xiphinema santos***	H0136	Rociana del condado, Huelva province, Spain	grapevine	JQ990030	JQ990055
60.	***Xiphinema setariae***	ACC09	Pueblo Nuevo de Duacarí. Guácimo. Limón	banana	KX931066	KY816648
	Xiphinema setariae	CD208	Florida, USA	-	-	KX263044
61.	***Xiphinema simile***	-	Portugal	-	-	AM086709
	Xiphinema simile	-	Slovakia	*Juglans regia*	-	AM086710
	Xiphinema simile	-	Cejkovice, Czech Republic	cherry	-	GU222425
	Xiphinema simile	-	Detkovice, Czech Republic	cherry	-	GU222426
	Xiphinema simile	-	Velke Pavlovice Czech Republic	apricot	-	GU222427
	Xiphinema simile	-	Serbia	Unknown	-	AM086711
	Xiphinema simile	-	Velke Pavlovice, Czech republic	apricot	-	GU222427

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62.	***Xiphinema sphaerocephalum***	AR063	Coto Ríos, Jaén province, Spain	wild olive	*	KY816649
63.	***Xiphinema taylori***	-	Slovakia	*J. regia*	-	AM086702
	Xiphinema taylori	-	Slovakia	*J. regia*	-	AM086703
64.	***Xiphinema turcicum***	ST149	San José del Valle, Cádiz province, Spain	wild olive	*	KY816650
65.	***Xiphinema turdetanense***	AR0015	Sanlúcar de Barrameda, Cádiz province, Spain	wild olive	KC567186	KY816651
66.	***Xiphinema vallense***	AR0027	Bolonia, Cádiz province, Spain	wild olive	KP268960	KY816652
	Xiphinema vallense	H00003	Hinojos, Huelva province, Spain	cultivated olive	KP268961	KY816653
67.	***Xiphinema vuittenezi***	-	Slany, Czech Republic	Apple tree	EF614265	EF614265
68.	***Xiphinema*** sp.	P0011	Sbitla, Kasserine, Tunisia	Cultivated olive	KX062686	KY816654
69.	***Xiphinema sp.*** JPNH509	-	Chiba, Japan	Ilex crenata	-	AB604339
	Xiphinema sp. JPNH509	-	Chiba, Japan	Ilex crenata	-	AB604338
70.	***Xiphinema* sp1** SAS2016	CD44	California, USA	plum	KX263132	KX263093
	***Xiphinema* sp1** SAS2016	CD50	California, USA	plum	KX263135	KX263086
	***Xiphinema* sp1** SAS2016	CD91	California, USA	grape	KX263137	KX263090
	***Xiphinema* sp1** SAS2016	CD95	California, USA	grape	KX263133	KX263091
	***Xiphinema* sp1** SAS2016	CD96	California, USA	grape	KX263123	KX263089
	***Xiphinema* sp1** SAS2016	CD139	California, USA	walnut	KX263130	KX263092
	***Xiphinema* sp1** SAS2016	XA13	California, USA	alfalfa	KX263126	KX263097
	***Xiphinema* sp1** SAS2016	XA19	California, USA	alfalfa	KX263120	KX263099
	***Xiphinema* sp1** SAS2016	XA26	California, USA	plum	KX263124	KX263101
	***Xiphinema* sp1** SAS2016	XA65	California, USA	plum	KX263121	KX263085
	***Xiphinema* sp1** SAS2016	XA100	California, USA	walnut	KX263122	KX263088
	Xiphinema tarjanense	-	USA	Orchard fruit	-	AM086694
71.	***Xiphinema* sp2** SAS2016	CD152	California, USA	orange	KX263167	KX263105
72.	***Xiphinema* sp5** SAS2016	XA88	California, USA	peach	-	KX263045
	Genus ***Longidorus*** spp.					
73.	***Longidorus aetneus***	CD1138	Varenikovskaya, Krymsk, Krasnodar Terr., Russia	Silver poplar	KF242324	KY816655
	Longidorus aetneus	CD1121	Varenikovskaya, Krymsk, Krasnodar Terr., Russia	*Populus* sp.	KF242323	KY816656
	Longidorus aetneus	CD1111	Varenikovskaya, Krymsk, Krasnodar Terr., Russia	*Salix fragilis*	KF242318	KY816657
	Longidorus aetneus	CD1129	Varenikovskaya, Krymsk, Krasnodar Terr., Russia	*Acer tataricum*	KF242321	KY816658
	Longidorus aetneus	CD1142	Varenikovskaya, Krymsk, Krasnodar Terr., Russia	*Salix alba*	KF242322	KY816659
74.	***Longidorus africanus***	P00011	Chott-mariem province, Tunisia	cultivated olive	KX062665	KY816660
75.	***Longidorus alvegus***	ALNOR	Andújar, Jaén province, Spain	black alder	*	KY816661
76.	***Longidorus andalusicus***	J0172	Sanlúcar de Barrameda, Cádiz province, Spain	pickle weed	JX445118	KY816662
77.	***Longidorus apulus***	BARLE	Barletta, Bari province, Italy	artichoke	AY601571	KY816663
78.	***Longidorus artemisiae***	CD1127	Shestikhino, Myshkin district, Yaroslavl, Russia	*Poa* sp.	KF242314	KY816664
79.	***Longidorus asiaticus***	LARGE	Bari province, Italy	crape myrtle	KR351254	KY816665
80.	***Longidorus baeticus***	M0121	Montemayor, Córdoba province, Spain	grapevine	JX445106	KY816666

Nematode species	Sample code	Locality	Host plant	GenBank accession numbers	
81. ***Longidorus closelongatus***	23CRE	Mires, Heraklion Province, Crete, Greece	grapevine	KJ802865	KY816667
82. ***Longidorus crataegi***	M0156	Montemayor , Córdoba province, Spain	grapevine	JX445114	KY816668
Longidorus crataegi	M0156	Montemayor , Córdoba province, Spain	grapevine	*	KY816669
83. ***Longidorus cretensis***	TOCRE	Pentamodi, Heraklion province, Crete, Greece	cultivated olive	KJ802868	KY816670
84. ***Longidorus distinctus***	CD1128	Pyatigorsk, Stavropol Territory, Russia	*Salix sp.*	KF242317	KY816671
85. ***Longidorus euonymus***	CD1118	Bolshoy Vyas, Lunino district	*Asparagus cicer*	KF242333	KY816672
Longidorus euonymus	CD1130	Anapa, Anapa district, Krasnodar Territory, Russia	*Juglans regia*	KF242332	KY816673
86. ***Longidorus fasciatus***	M0063	Monturque , Córdoba province, Spain	grapevine	JX445108	KY816674
87. ***Longidorus helveticus***	-	Stari Ledinci, Serbia	Unknown	EF538753	EF538747
Longidorus helveticus	-	Chodovlice, Czech republic	Sweet cherry	JN627414	JN627416
Longidorus helveticus	-	Silnicna, Czech republic	*Prunus avium* L.	JN627415	JN627417
88. ***Longidorus indalus***	ST042	Las Tres Villas, Almería province, Spain	cultivated olive	KT308854	KY816675
89. ***Longidorus intermedius***	CD1122	Kamennomostsky, Adygeya, Russia	*Fagus orientalis*	KF242312	KY816676
90. ***Longidorus iranicus***	GRECD	Harakas province, Greece	grapevine	KJ802875	KY816677
91. ***Longidorus iuglandis***	H0183	Bonares, Huelva province, Spain	grapevine	JX445104	KY816678
92. ***Longidorus jonesi***	MIY03	Miyazaki, Japan	*Prunus* sp.	KF552069	KY816679
93. ***Longidorus kuiperi***	BOLOI	Bolonia, Cádiz province, Spain	marram grass	*	KY816680
94. ***Longidorus laevicapitatus***	ACC01	La Virgen de Sarapiquí, Heredia, Costa Rica	Sugar cane	KX136865	KY816681
95. ***Longidorus leptocephalus***	CD1136	Potrosovo, Kozelsk district, Kaluga region, Russia	common nettle	KF242326	KY816682
96. ***Longidorus lignosus***	CD1124	Sukko, Anapa district, Krasnodar, Territory, Russia	*Acer campestre*	KF242345	KY816683
97. ***Longidorus lusitanicus***	J0212	Sanlúcar de Barrameda, Cádiz province, Spain	wild olive	KT308869	KY816684
98. ***Longidorus macrodorus***	JAO06	La Grajuela (Córdoba, Spain)	cultivated olive	KT308855	KY816685
Longidorus macrodorus	JAO06	La Grajuela (Córdoba, Spain)	cultivated olive	KT308856	KY816686
99. ***Longidorus macrosoma***	-	Orth, Austria	Unknown	EF538752	EF538746
100. ***Longidorus magnus***	M0130	Hinojos, Huelva province, Spain	cultivated olive	KX00000	KY816687
Longidorus magnus	M0079	Monturque, Córdoba province, Spain	grapevine	KX00000	KY816688
Longidorus magnus	M0017	Lucena, Córdoba province, Spain	grapevine	JX445113	KY816689
Longidorus magnus	J0164	Jerez de la Frontera, Cádiz, Spain	grapevine	*	KY816690
Longidorus magnus	ST077	Espiel, Córdoba province, Spain	cultivated olive	*	KY816691
Longidorus magnus	JAO01	Villaviciosa, Córdoba province, Spain	cultivated olive	*	KY816692
Longidorus magnus	JAO31	Antequera, Málaga province, Spain	cultivated olive	*	KY816693
Longidorus magnus	CASLO	Castillo de Locubin, Granada province, Spain.	cherry tree	*	KY816694
101. ***Longidorus onubensis***	ST005	Niebla (Huelva, Spain)	cultivated olive	KT308857	KY816695
102. ***Longidorus orientalis***	-	Murcia, Spain	Grapevine	KP406931	KP406950
Longidorus orientalis	CD1553	Arizona, USA	*Phoenix dactylifera*	*	KP406952
Longidorus orientalis	CD1537	California, USA	*Phoenix dactylifera*	*	KP406957
Longidorus orientalis	R0044	El Rocío, Huelva province, Spain	Gramineae	GU001823	KP406961
Longidorus orientalis	CD1562	Khuzestan Province, Ahvaz, Iran	*Phoenix dactylifera*	KJ802877	KP406962
Longidorus orientalis	CD1563	Khuzestan Province, Ahvaz, Iran	*P. dactylifera*	-	KP406964

Nematode species	Sample code	Locality	Host plant	GenBank accession numbers	
Longidorus orientalis	CD1564	Khuzestan Province, Ahvaz, Iran	*P. dactylifera*	-	KP406965
Longidorus orientalis	O44	Heraklion Province, Crete, Greece	grapevine	KJ802877	KP406963
Longidorus orientalis	P28	Alhama de Murcia, Spain	grapevine	KP406931	KP406951
Longidorus orientalis	N10	Bollullos par del Condado, Huelva, Spain	grapevine	KP406933	KP406949
103. ***Longidorus persicus***	ESMAE	Gilan-e-Gharb, Kermanshah province, Iran	rose	KT149799	KY816696
104. ***Longidorus pisi***	0IRAN	Markazi province, Iran	apple tree	JQ240274	KY816697
105. ***Longidorus poessneckensis***	-	Velke Kapusany, Slovakia	Unknown	EF538751	EF538745
Longidorus poessneckensis	-	Černé Voděrady, Czech Republic	*Quercus*	EF538750	EF538744
106. ***Longidorus pseudoelongatus***	AR034	Voutes province, Greece	cultivated olive	KJ802870	KY816698
Longidorus pseudoelongatus	AR040	Hersonisos province, Greece	cultivated olive	KJ802871	KY816699
107. ***Longidorus rubi***	H0026	Almonte, Huelva province, Spain	Pinus pinea	JX445116	KY816700
108. ***Longidorus silvestris***	AR027	Bolonia (Cádiz, Spain)	cultivated olive	KT308859	KY816701
109. ***Longidorus uroshis***	-	Velke Pole. Slovakia	Unknown	EF538754	EF614264
110. ***Longidorus vallensis***	AR055	San José del Valle, Cádiz province, Spain	wild olive	KT308861	KY816702
Longidorus vallensis	M0012	Cabra, Córdoba province, Spain	grapevine	KT308862	KY816703
111. ***Longidorus vineacola***	AR031	Tarifa, Cádiz province, Spain	wild olive	KT308873	KY816704
Longidorus vineacola	AR113	Alcolea, Córdoba province, Spain	wild olive	*	KY816705
Longidorus vineacola	TRASI	Córdoba province, Spain	cultivated olive	*	KY816706
Longidorus vineacola	M0124	Montemayor, Córdoba province, Spain	Portuguese oak	*	KY816707
Longidorus vineacola	M0124	Montemayor, Córdoba province, Spain	Portuguese oak	*	KY816708
Longidorus vineacola	0419B	Andújar, Jaen province, Spain	wild olive	*	KY816709
Longidorus vineacola	H0089	Almonte, Huelva province, Spain	Stone pine	*	KY81671
Longidorus vineacola	SR117	Setenil de las Bodegas, Cádiz province, Spain	cultivated olive	*	KY816711
Longidorus vineacola	ST016	El Saucejo, Sevilla province, Spain	cultivated olive	KT308872	KY816712
112. ***Longidorus vinearum***	AR097	Santa Mª de Trassierra (Córdoba, Spain)	wild olive	KT308876	KY816713
113. ***Longidorus wicuolea***	AR0101	Bonares (Huelva, Spain)	wild olive	KT308865	KY816714
114. ***Longidorus* sp.3**	CD1112	Natukhaevskaya, Krasnodar Territory, Russia	*Prunus divaricata*	KF242335	KY816715
115. ***Longidorus* sp.4**	CD1117	Proletarka, Krasnosulinsk, Rostov region, Russia	*Salix babylonica*	KF242334	KY816716
116. ***Longidorus* sp.6**	CD876	Point Reyes, Marin county, California, USA	unknown	KF242328	KY816717
Genus ***Paralongidorus*** spp.					
117. ***Paralongidorus bikanerensis***	BAMIR	Bam, Kerman province, Iran	Palm	JN032584	KY816718
118. ***Paralongidorus iranicus***	NOURI	Nour, Mazandaran province, Iran	Pine	JN032587	KY816719
119. ***Paralongidorus litoralis***	ZAHAR	Zahara de los Atunes, Cádiz province, Spain	mask tree	EU026155	KY816720
120. ***Paralongidorus paramaximus***	ALGUC	Alcalá de Guadaira, Sevilla province, Spain	citrus	EU026156	KY816721
Paralongidorus paramaximus	ALGUC	Alcalá de Guadaira, Sevilla province, Spain	citrus	*	KY816722
Paralongidorus paramaximus	ALGUC	Alcalá de Guadaira, Sevilla province, Spain	citrus	*	KY816723

[1]For species identification see: [9,19,20,25,27,40,41,44,45,46,47,48,63,64,65,66,67,68,69].

[2](*) Sequenced population but not deposited in GenBank database, since was identical to other sequences of the same species already deposited in GenBank.

[3](-) Sequence not obtained or not performed.

Table S2. Molecular interspecific variability for *coxI* gene within the studied genera *(Xiphinema, Longidorus* and *Paralongidorus*).

	Number of sequences	Similarity[1] (%)	(%) Singletones	(%) Parsimony informative sites
Genus *Xiphinema* spp.				
Xiphinema americanum-group				
1. X. americanum[2]	22	78.82	13.23	8.23
2. X. brevicolle 'complex'[3]	14	76.67	0.28	23.64
3. X. browni	3	99.22	0.53	0.00
4. X. californicum	18	89.83	5.08	5.08
5. X. floridae	2	98.52	-	-
6. X. incognitum	2	86.61	-	-
7. X. opisthohysterum	4	95.49	4.01	0.00
8. X. pachtaicum	21	94.85	1.63	1.90
9. X. peruvianum[5]	2	79.71	-	-
10. X. rivesi	7	78.09	6.74	15.17
11. X. simile	6	94.31	4.95	0.74
12. X. vallense	2	100.00	-	-
13. Xiphinema sp.1	18	82.26	8.39	9.35
14. Xiphinema sp. JPN-2014	2	100.00	-	-
Xiphinema non-*americanum group*				
15. X. adenohystherum	5	88.40	10.90	3.94
16. X. andalusiense	3	97.20	2.81	0.00
17. X. baetica	2	96.90	-	-
18. X. bakeri	2	97.49	-	-
19. X. celtiense	2	93.97	-	-
20. X. chambersi	8	98.62	0.92	0.46
21. X. costaricense	2	99.11	-	-
22. X. coxi europaeum	2	93.10	-	-
23. X. diversicaudatum	29	91.80	1.64	5.74
24. X. herakliense	3	96.90	2.62	0.00
25. X. hispidum	2	95.95	-	-
26. X. index	9	98.34	0.95	-
27. X. italiae	6	69.73	9.93	20.34
28. X. krugi	2	96.76	-	-
29. X. lupini	3	98.50	1.50	0.00

30. X. mengibarense	2	99.46	-	-
31. X. nuragicum	5	95.79	1.32	2.89
32. X. setariae	2	100.00	-	-
Genus *Longidorus* spp.				
33. L. aetnaeus	5	99.37	0.63	0.00
34. L. crataegi	2	98.41	-	-
35. L. euonymus	2	100.00	-	-
36. L. helveticus	3	92.39	7.61	0.00
37. L. macrodorus	2	99.68	-	-
38. L. magnus	8	78.70	3.97	17.33
39. L. orientalis	17	78.78	0.72	20.50
40. L. pseudoelongatus	2	100.00	-	-
41. L. poessneckensis	2	84.62	-	-
42. L. vallensis	2	100.00	-	-
43. L. vineacola	9	68.91	7.05	24.04
Paralongidorus sp.				
44. P. paramaximus	2	99.31	-	-

[1]Minimum similarity percentage
(-) Not determined
[2] *X. americanum cf.* not included
[3]*X. brevicolle* ‘complex’*: X. diffusum, X. taylori, X. brevicolle,* (not include accession AM086707 probably wrong identity) and not included in further analysis

Table S3. Molecular interspecific variability for D2-D3 region within the studied genera (*Xiphinema*, *Longidorus* and *Paralongidorus*).

	Number of sequences	Similarity (%)	(%) Singleton bases	(%) Parsimony informative sites
Genus *Xiphinema* spp.				
Xiphinema americanum-group				
1. X. americanum	20	94.65	3.67	1.53
2. X. brevisicum	2	99.83	-	-
*3. X. brevicolle**	21	97.41	1.59	1.01
4. X. bricolensis	2	99.60	-	-
5. X. browni	4	100.00	0.00	0.00
6. X. californicum	17	95.69	2.72	1.59
7. X. citricolum	6	100.00	0.00	0.00
8. X. duriense	2	99.58	-	-
9. X. floridae	4	100.00	0.00	0.00
10. X. georgianum	9	99.73	0.27	0.00
11. X. incertum	5	99.47	0.27	0.27
12. X. laevistriatum	4	99.76	0.24	0.00
13. X. opisthohysterum	2	100.00	-	-
14. X. pachtaicum	25	96.51	1.90	1.27
15. X. parapachydermum	6	98.73	0.79	0.47
16. X. plesiopachtaicum	3	100.00	0.00	0.00
17. X. rivesi	23	95.72	0.14	2.48
18. X. santos	3	100.00	0.00	0.00
19. X. simile	7	99.18	0.41	0.27
20. X. thornei	2	99.73	-	-
21. X. vallense	3	100.00	0.00	0.00
22. Xiphinema sp. 1 SAS-2016	23	98.40	0.89	0.89
23. Xiphinema sp. 3 SAS-2016	2	100.00	-	-
24. Xiphinema sp. 4 SAS-2016	2	99.71	-	-
Xiphinema non-*americanum group*				
25. X. adenohystherum	5	99.02	0.84	0.14
26. X. andalusiense	5	99.49	0.51	0.00
27. X. baetica	6	98.71	0.71	0.57
28. X. bakeri	5	98.69	1.05	0.26
29. X. barense	3	99.72	0.28	0.00

30. *X. basiri*	2	100.00	-	-
31. *X. belmontense*	3	100.00	-	-
32. *X. brasiliense*	2	100.00	-	-
33. *X. celtiense*	2	99.31	-	-
34. *X. chambersi*	9	97.44	0.71	0.71
35. *X. cohni*	2	97.00	-	-
36. *X. conurum*	4	99.39	0.60	0.00
37. *X. costaricense*	4	99.68	0.16	0.16
38. *X. coxi europaeum*	7	99.73	0.28	0.00
39. *X. cretense*	4	99.73	0.27	0.00
40. *X. dentatum*	2	99.87	-	-
41. *X. diversicaudatum*	13	98.90	0.54	0.54
42. *X. elongatum*	4	99.61	0.00	0.39
43. *X. herakliense*	8	99.34	0.47	0.16
44. *X. hispidum*	4	99.15	0.85	0.00
45. *X. hunaniense*	9	97.93	0.39	1.68
46. *X. index*	19	99.42	0.29	0.29
47. *X. ingens*	2	99.59	-	-
48. *X. israeliae*	4	99.43	0.43	0.14
49. *X. italiae*	10	97.05	1.12	1.83
50. *X. krugi*	4	100.00	0.00	0.00
51. *X. lupini*	2	99.85	-	-
52. *X. macroacanthum*	2	96.56	-	-
53. *X. macrodora*	6	99.86	-	-
54. *X. mengibarense*	3	99.86	0.14	0.00
55. *X. meridianum*	3	99.73	0.41	0.00
56. *X. nuragicum*	10	100.00	0.00	0.00
57. *X. oleae*	3	99.32	0.68	0.00
58. *X. pseudocoxi*	2	99.67	-	-
59. *X. robbinsi*	3	99.38	0.41	0.00
60. *X. setariae*	6	98.86	0.85	0.28
61. *X. sphaerocephalum*	2	99.47	-	-
62. *X. turcicum*	4	99.47	0.40	0.13
63. *X. turdetanense*	2	99.46	-	-
64. *X. vuittenezi*	5	99.47	0.26	0.26
65. *Xiphinema* sp. P11	3	100.00	0.00	0.00

Genus *Longidorus* spp.				
66. L. aetnaeus	10	99.31	0.55	0.14
67. L. africanus	10	98.42	1.29	0.28
68. L. andalusicus	3	99.71	0.29	0.00
69. L. artemisiae	4	99.85	0.14	0.00
70. L. alvegus	4	99.02	0.84	0.14
71. L. asiaticus	3	99.06	0.80	0.00
72. L. attenuatus	3	100.00	0.00	0.00
73. L. baeticus	2	98.45	-	-
74. L. caespiticola	5	95.97	2.92	0.42
75. L. carniolensis	2	100.00	-	-
76. L. cholevae	2	100.00	-	-
77. L. closelongatus	5	100.00	0.00	0.00
78. L. cretensis	3	99.58	0.42	0.00
79. L. danuvii	2	100.00	0.00	0.00
80. L. distinctus	2	100.00	0.00	0.00
81. L. elongatus	19	98.70	1.00	0.29
82. L. euonymus	5	99.59	0.41	0.00
83. L. helveticus	5	99.46	0.54	0.00
84. L. henanus	2	99.73	-	-
85. L. glycines	3	98.97	1.03	0.00
86. L. indalus	3	99.70	0.30	0.00
87. L. intermedius	4	98.56	1.01	0.43
88. L. iranicus	5	99.86	0.13	0.00
89. L. iuglandis	2	100.00	-	-
90. L. juvenilis	2	99.03	-	-
91. L. kuiperi	2	100.00	-	-
92. L. laevicapitatus	4	100.00	0.00	0.00
93. L. leptocephalus	5	99.57	0.29	0.00
94. L. lignosus	3	100.00	-	-
95. L. magnus	5	99.58	0.42	0.00
96. L. macrodorus	2	100.00	-	-
97. L. macrosoma	2	99.72	-	-
98. L. oleae	2	99.71	0.29	0.00
99. L. onubensis	2	100.00	-	-
100. L. orientalis	7	99.57	0.28	-

101.L. persicus	2	100.00	-	-
102.L. pisi	3	99.58	0.42	0.00
103.L. pseudoelongatus	4	99.86	0.14	0.00
104.L. poessneckensis	2	100.00	-	-
105.L. silvestris	2	100.00	-	-
106.L. vallensis	2	99.71	-	-
107.L. vineacola	5	98.30	1.55	0.14
108.L. vinearum	4	99.45	0.55	0.00
109.L. wicuolea	4	99.15	0.85	0.00
110.Longidorus sp. 5 2014	2	99.73	-	-
111.*Longidorus* sp. JH2014	3	100.00	0.00	0.00
Genus *Paralongidorus* spp.				
112.P. rex	5	99.85	0.15	0.00

(-) Not determined

[*]*X. brevicolle* ‘complex’*: X. diffusum, X. taylori, X. brevicolle* and *X. inaequale*, not included in further analysis

Table S4. Molecular interspecific variability for *ITS* region within the studied genera *(Xiphinema, Longidorus* and *Paralongidorus*)*.

	Nº seq.	Similarity %	Singleton sites %	Parsimony informative sites %		Nº seq.	Similarity %	Singleton sites %	Parsimony informative sites %
Genus *Xiphinema* spp.									
Xiphinema americanum group					*Xiphinema* non-*americanum* group				
1. X. americanum	37	78.61	13.70	5.68	*14. X. andalusiense*	6	97.66	0.49	1.65
2. X. brevicolle	7	92.10	2.46	4.02	*15. X. baetica*	2	98.92	0.00	0.00
3. X. browni	3	100.00	0.00	0.00	*16. X. bakeri*	3	97.49	1.99	0.00
4. X. citricolum	4	97.87	1.35	0.14	*17. X. bernardi*	3	99.49	0.51	0.00
5. X. floridae	4	97.38	1.79	0.07	*18. X. brasiliense*	2	89.21	-	-
6. X. georgianum	8	96.78	1.75	1.33	*19. X. celtiense*	2	96.73	-	-
7. X. laevistriatum	4	98.67	0.62	0.00	*20. X. chambersi*	11	87.22	6.47	3.99
8. X. inaequale	2	79.15	-	-	*21. X. conurum*	2	98.56	-	-
9. X. oxycaudatum	2	100.00	0.00	0.00	*22. X. costaricense*	4	93.49	4.43	0.55
10. X. rivesi	9	93.02	1.98	4.10	*23. X. coxi europaeum*	3	100.00	0.00	0.00
11. X. pachtaicum	3	91.32	1.30	0.00	*24. X. diversicaudatum*	4	96.57	1.55	1.33
12. X. santos	2	100.00	-	-	*25. X. herakliense*	3	99.22	0.67	0.00
13. X. simile	2	100.00	-	-	*26. X. hunaniense*	2	97.73	-	-
					27. X. index	5	99.03	0.68	0.19
					28. X. ingens	2	98.85	-	-
					29. X. insigne	2	94.86	-	-
					30. X. italiae	8	89.91	5.23	2.88
					31. X. iznajarense	2	99.09	-	-
					32. X. krugi type A	2	94.12	-	-
					33. X. krugi type B	3	90.26	6.46	0.00
					34. X. krugi type C	5	93.03	4.44	0.89
					35. X. macrodora	3	99.42	0.58	0.00
					36. X. mengibarense	2	97.72	-	-
					37. X. nuragicum	3	99.70	0.19	0.00
					38. X. oleae	2	99.55	-	-
					39. X. pseudocoxi	2	97.15	-	-
					40. X. setariae	3	99.16	0.82	0.00
	Nº	Conserved	Singleton	Parsimony					

	seq.	sites %	sites %	informative sites %
Genus *Longidorus*				
41. L. africanus	2	98.06	-	-
42. L. arthensis	2	99.56	-	-
43. L. asiaticus	2	99.12	-	-
44. L. biformis	3	84.59	4.20	9.11
45. L. caespiticola	2	99.75	-	-
46. L. diadecturus	2	98.86	-	-
47. L. elongatus	4	99.31	0.49	0.00
48. L. euonymus	2	99.99	-	-
49. L. glycines	3	92.73	4.69	0.00
50. L. indalus	2	97.71	-	-
51. L. iranicus	2	99.80	-	-
52. L. kuiperi	13	93.13	1.74	4.97
53. L. laevicapitatus	4	99.34	0.33	0.11
54. L. macrodorus	2	99.49	-	-
55. L. orientalis	2	96.92	0.40	1.60
56. L. onubensis	2	100.00	-	-
57. L. pius	8	99.86	0.00	0.13
58. L. raskii	2	99.24	-	-
59. L. vallensis	2	97.08	-	-
60. L. vinearum	2	100.00	-	-
61. L. wicuolea	3	99.46	0.40	0.00
62. Longidorus sp. JH2014	2	100.00	-	-
63. Longidorus sp. M30	2	99.01	-	-
Genus Paralongidorus				
64. P. rex	4	99.43	0.85	0.00

*Some sequences of *X. diversicaudatum* have been corrected following Chizhov *et al.*[18]

***coxI* phylonetic tree Newick format**. Phylogenetic relationships within Longidoridae. Bayesian 50% majority rule consensus tree as inferred from the analysis of the partial coxI sequence alignment under a TrN + I+ G model. Posterior probabilities more than 0.70 are given for appropriate clades.

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D2-D3 region phylonetic tree Newick format. Phylogenetic relationships within Longidoridae. Bayesian 50% majority rule consensus tree as inferred from the analysis of the D2-D3 region alignment under a GTR + I + G model. Posterior probabilities more than 0.70 are given for appropriate clades.

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Supporting Information Figures (Figs S1-S3)

Figure S1. Phylogenetic relationships within Longidoridae. Bayesian 50% majority rule consensus tree as inferred from the analysis of the partial *coxI* sequence alignment under a TrN + I+ G model. Posterior probabilities more than 0.7 are given for appropriate clades. New sequences obtained in this study are in bold.

Figure S2. Phylogenetic relationships within Longidoridae. Bayesian 50% majority rule consensus tree as inferred from the analysis of the first and second nucleotide from each codon from the partial *coxI* sequence alignment under a TVM + I+ G model. Posterior probabilities more than 0.7 are given for appropriate clades. New sequences obtained in this study are in bold.

Figure S3. Phylogenetic relationships within Longidoridae. Bayesian 50% majority rule consensus tree as inferred from the analysis of the D2-D3 region alignment under a GTR + I + G model. Posterior probabilities more than 0.7 are given for appropriate clades. New sequences obtained in this study are in bold.

coxI

FIGURE S1

coxI FIGURE S2

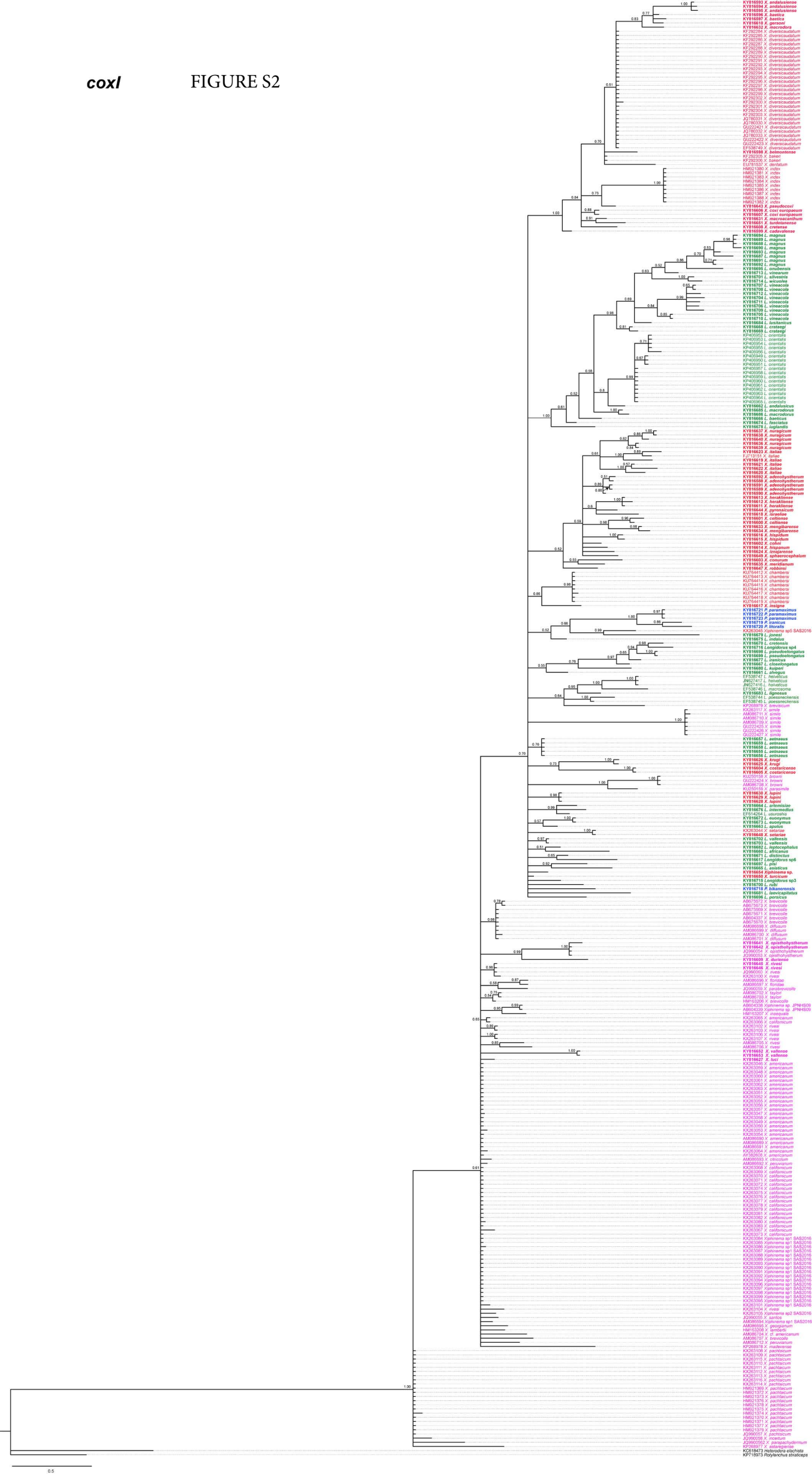

FIGURE S3

Xiphinema non-americanum group species
Xiphinema americanum group species
Longidorus group species
Paralongidorus spp.
0.4