

Table S1. The number of base pair differences of ITS rDNA within *C. elegans*, *C. macroelegans* and *C. densoelegans* strains.

Species	Strain	Code	C1	C2	C3	C4	C5	C6	C7	C8
<i>C. macroelegans</i>	MC733	C1								
	MC747	C2	1							
	MC777	C3	3	3						
	MC785	C4	2	3	1					
	MC788	C5	1	1	2	3				
	MC790	C6	2	1	5	5	2			
	MC1000	C7	1	1	3	3	1	2		
<i>C. densoelegans</i>	MC687	C8	41	41	41	40	41	40	38	
<i>C. elegans</i>	YL7	C9	54	54	55	55	54	56	52	56

Table S2. The number of base pair differences of SSU rDNA within *C. elegans*, *C. macroelegans* and *C. densoelegans* strains.

Species	Strain	Code	C1	C2	C3
<i>C. macroelegans</i>	MC733	C1			
	MC785	C2	1		
<i>C. densoelegans</i>	MC687	C3	7	8	
<i>C. elegans</i>	YL7	C4	5	6	2

Table S3. The number of base pair differences of LSU rDNA within *C. elegans*, *C. macroelegans* and *C. densoelegans*.

Species	Strain	Code	C1	C2
<i>C. macroelegans</i>	MC758	C1		
<i>C. densoelegans</i>	MC687	C2	3	
<i>C. elegans</i>	YL7	C3	7	6

Table S4. Morphological characters for differentiating the known nine species of the section *Dicladia*.

Character	<i>C. decipiens</i>	<i>C. elegans</i>		<i>C. macroelegans</i>		<i>C. densoelegans</i>		<i>C. laevisporus</i>	<i>C. man-naii</i>	<i>C. mitra</i>	<i>C. lo-renzi-anus</i> type material	<i>C. pauci-ramosus</i>
Seta poroid shape	round-oval	intercalary seta	terminal seta	intercalary seta	terminal seta	intercalary seta	terminal seta	round-oval	oval	round-oval	round	elongated or round-oval
		tear-shaped	tear-shaped	tear-shaped、round-oval	tear-shaped、round-oval	tear-shaped、round-oval	tear-shaped、round-oval					
Seta poroid size (μm)	0.1–0.6(0.3±0.1)	0.4–1.0(0.7±0.2)	0.6–1.2(0.9±0.2)	0.7–2.3(1.2±0.3) (tear-shaped)	0.5–1.3(0.7±0.2) (tear-shaped)	0.6–0.9(0.7±0.1) (tear-shaped)	0.5–0.7(0.6±0.1) (tear-shaped)	0.3–0.9(0.6±0.1)	0.4–1.2(0.7±0.2)	0.1–0.3(0.2±0.1)	nd	0.1–0.6(0.3±0.1)
				0.4–0.5(0.4±0.03) (round-oval)	0.4–0.6(0.4±0.1) (round-oval)	0.3–0.5(0.4±0.1) (round-oval)	0.2–0.5(0.4±0.1) (round-oval)					
Seta poroid number in 10 μm	14.0–38.0(19.0±6.7)	8.0–18.5(12.0±3.1)	7.2–12.8(9.4±1.7)	5.0–13.0(7.9±1.7) (tear-shaped)	6.5–16.0(11.0±2.2) (tear-shaped)	8.4–14.0(11.2±2.1) (tear-shaped)	9.3–14.2(12.3±2.7) (tear-shaped)	11.0–17.0(13.8±1.9)	11.0–15.0(12.3±1.6)	30.0–56.0(39.8±9.7)	5.0–9.0(7.2±1.7)	18.0–44.0(31.7±5.4)
				15.3–18.3(17.1±1.2) (round-oval)	12.0–19.1(15.8±2.3) (round-oval)	13.5–27.0(20.0±4.2) (round-oval)	15.0–27.0(19.5±3.1) (round-oval)					
Brunel group	I	I		I		I		I	I	II	I	I
Fusion of seta bases	present/absent	absent		absent		absent		absent	absent	absent	present	present/absent

Resting spore	unknown	unknown	two branching processes	two branching processes	smooth, without branching processes	unknown	two branching processes	two branching processes?	two branching processes
Aperture shape	oval-hexagonal	rounded、quadrangular	elliptical to hexagonal	oval-hexagonal	oval peanut shaped	hexagonal	oval-hexagonal, peanut shaped	oval-hexagonal	oval-hexagonal, peanut shaped
Aperture/pervalvar axis index	0.5	0.5–0.9	0.2–0.7	0.3–0.6	0.4	0.3	0.2	0.5–1.0	0.5
Basal part of setae	lacking	distinct	most lacking, (only a few) short	lacking	lacking	present	lacking	present	present
Poroids on valve face and mantle	yes	yes	yes	yes	no	no	no	n.d.	yes
External tube of rimoportula	no	short	short	short	no	distinct	no	n.d.	short
Apical axis (μm)	7.8–64.3 (29.5±14.7)	9.2–14.7 (12.5±1.8)	12.6–39.7 (27.9±10.8)	25.0–26.5 (25.5±0.6)	22.4–46.3 (32.7±7.9)	5.7–12.9 (10.3±2.1)	16.5–23.8 (20.6±2.0)	20.0–43.0	10.0–38.0 (18.0±7.5)
Pervalvar axis (μm)	7.8–78.9 (18.5±10.9)	9.2–16.4 (12.0±1.7)	11.3–28.4 (17.5±3.9)	9.4–15.8 (12.4±2.2)	13.2–42.5 (21.6±6.4)	8.4–29.6 (17.0±5.2)	28.1–48.2 (35.6±5.2)	nd	10.0–38.0 (19.5±5.5)
Aperture in peralvar axis (μm)	3.3–5.1 (9.0±2.8)	7.8–12.9 (10.2±2.0)	6.3–12.6 (8.9±2.0)	8.3–14.5 (11.4±1.5)	6.3–12.0 (9.6±1.5)	4.6–5.6 (5.1±0.4)	2.9–10.0 (6.7±1.3)	nd	4.2–10.4 (6.7±1.5)
Reference	[12]	This study	This study	This study	[12]	[12]	[12]	[12]	[12]