Complete mitochondrial genomes and nuclear ribosomal RNA operons of two species of *Diplostomum* (Platyhelminthes: Trematoda): a molecular resource for taxonomy and molecular epidemiology of important fish pathogens

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Additional Table S1 Codon usage in the mt protein-coding genes of *Diplostomum spathaceum* (first line) and *D. pseudospathaceum* (second line) expressed as a total count and percentage (in parentheses) of a given codon in a gene.

Amino acid	Codon	atp6	cob	cox1	cox2	cox3	nad1	nad2	nad3	nad4	nad4L	nad5	nad6
Non-polar													
Alanine (A)	GCN	6 (3.5)	15 (4.1)	17 (3.1)	6 (2.9)	4 (1.8)	13 (4.3)	4 (1.3)	0 (0.0)	16 (3.7)	1 (1.1)	20 (3.8)	2 (1.3)
		7 (4.0)	17 (4.6)	18 (3.3)	6 (2.9)	2 (0.9)	10 (3.3)	4 (1.3)	0 (0.0)	13 (3.0)	1 (1.1)	17 (3.2)	1 (0.7)
Isoleucine (I)	ATY	17 (9.8)	24 (6.5)	52 (9.4)	15 (7.3)	16 (7.3)	24 (7.9)	34 (11.4)	8 (6.7)	32 (7.4)	11 (12.5)	42 (7.9)	13 (8.5)
		15 (8.7)	26 (7.0)	53 (9.6)	14 (6.8)	14 (6.4)	28 (9.2)	31 (10.3)	8 (6.7)	27 (6.3)	11 (12.5)	43 (8.1)	15 (9.8)
Leucine (L)	CTN	3 (1.7)	12 (3.2)	17 (3.1)	5 (2.4)	4 (1.8)	8 (2.6)	7 (2.4)	5 (4.2)	14 (3.2)	4 (4.5)	11 (2.1)	5 (3.3)
		2 (1.2)	12 (3.2)	12 (2.2)	5 (2.4)	5 (2.3)	9 (3.0)	7 (2.4)	3 (2.5)	13 (3.0)	3 (3.4)	9 (1.7)	3 (2.0)
Leucine (L)	TTR	30 (17.3)	51 (13.8)	60 (10.8)	11 (5.4)	28 (12.8)	39 (12.9)	33 (11.1)	13 (10.9)	64 (14.8)	19 (21.6)	77 (14.6)	15 (9.8)
		31 (17.9)	49 (13.2)	66 (11.9)	11 (5.4)	25 (11.5)	38 (12.5)	35 (11.7)	15 (12.6)	68 (15.7)	22 (25.0)	79 (14.9)	17 (11.1)
Methionine (M)	ATR	4 (2.3)	8 (2.2)	25 (4.5)	8 (3.9)	7 (3.2)	10 (3.3)	6 (2.0)	1 (0.8)	8 (1.8)	2 (2.3)	12 (2.3)	2 (1.3)
		4 (2.3)	8 (2.2)	25 (4.5)	7 (3.4)	6 (2.8)	9 (3.0)	7 (2.3)	2 (1.7)	6 (1.4)	2 (2.3)	12 (2.3)	2 (1.3)
Phenylalanine (F)	TTY	28 (16.2)	32 (8.6)	55 (9.9)	15 (7.3)	29 (13.3)	37 (12.2)	52 (17.5)	20 (16.8)	57 (13.2)	8 (9.1)	78 (14.7)	25 (16.3)
		25 (14.5)	33 (8.9)	55 (9.9)	14 (6.8)	31 (14.2)	39 (12.9)	57 (19.0)	18 (15.1)	58 (13.4)	7 (8.0)	74 (14.0)	23 (15.0)
Proline (P)	CCN	7 (4.0)	11 (3.0)	26 (4.7)	7 (3.4)	6 (2.8)	5 (1.7)	5 (1.7)	3 (2.5)	11 (2.5)	0 (0.0)	5 (0.9)	3 (2.0)
		7 (4.0)	11 (3.0)	26 (4.7)	7 (3.4)	6 (2.8)	5 (1.7)	5 (1.7)	2 (1.7)	10 (2.3)	0 (0.0)	5 (0.9)	2 (1.3)
Tryptophan (W)	TGR	2 (1.2)	10 (2.7)	18 (3.3)	5 (2.4)	7 (3.2)	12 (4.0)	12 (4.0)	3 (2.5)	14 (3.2)	1 (1.1)	11 (2.1)	5 (3.3)
		2 (1.2)	10 (2.7)	18 (3.3)	5 (2.4)	7 (3.2)	11 (3.6)	12 (4.0)	3 (2.5)	14 (3.2)	1 (1.1)	12 (2.3)	5 (3.3)
Valine (V)	GTN	16 (9.2)	43 (11.6)	40 (7.2)	23 (11.2)	25 (11.5)	30 (9.9)	25 (8.4)	15 (12.6)	39 (9.0)	9 (10.2)	57 (10.8)	17 (11.1)
		20 (11.6)	42 (11.4)	38 (6.9)	25 (12.2)	27 (12.4)	27 (8.9)	21 (7.0)	15 (12.6)	40 (9.3)	9 (10.2)	56 (10.6)	17 (11.1)

Polar

Asparagine (N)	AAY	5 (2.9)	9 (2.4)	16 (2.9)	6 (2.9)	4 (1.8)	8 (2.6)	6 (2.0)	6 (5.0)	10 (2.3)	3 (3.4)	12 (2.3)	4 (2.6)
		3 (1.7)	10 (2.7)	17 (3.1)	4 (2.0)	5 (2.3)	7 (2.3)	5 (1.7)	7 (5.9)	12 (2.8)	3 (3.4)	12 (2.3)	3 (2.0)
Cysteine (C)	TGY	3 (1.7)	7 (1.9)	8 (1.4)	7 (3.4)	6 (2.8)	12 (4.0)	12 (4.0)	2 (1.7)	18 (4.2)	2 (2.3)	19 (3.6)	6 (3.9)
		4 (2.3)	7 (1.9)	8 (1.4)	7 (3.4)	6 (2.8)	12 (4.0)	12 (4.0)	2 (1.7)	19 (4.4)	2 (2.3)	20 (3.8)	6 (3.9)
Glutamine (Q)	CAR	0 (0.0)	4 (1.1)	1 (0.2)	3 (1.5)	1 (0.5)	4 (1.3)	1 (0.3)	1 (0.8)	1 (0.2)	1 (1.1)	3 (0.6)	0 (0.0)
		0 (0.0)	3 (0.8)	1 (0.2)	3 (1.5)	1 (0.5)	4 (1.3)	1 (0.3)	1 (0.8)	1 (0.2)	1 (1.1)	3 (0.6)	0 (0.0)
Glycine (G)	GGN	11 (6.4)	22 (5.9)	47 (8.5)	14 (6.8)	17 (7.8)	20 (6.6)	14 (4.7)	5 (4.2)	29 (6.7)	4 (4.5)	36 (6.8)	11 (7.2)
		11 (6.4)	20 (5.4)	47 (8.5)	15 (7.3)	16 (7.3)	20 (6.6)	17 (5.7)	6 (5.0)	26 (6.0)	4 (4.5)	36 (6.8)	11 (7.2)
Serine (S)	AGN	2 (1.2)	22 (5.9)	22 (4.0)	6 (2.9)	10 (4.6)	11 (3.6)	19 (6.4)	5 (4.2)	21 (4.9)	5 (5.7)	18 (3.4)	10 (6.5)
		3 (1.7)	22 (5.9)	20 (3.6)	8 (3.9)	10 (4.6)	12 (4.0)	19 (6.4)	2 (1.7)	25 (5.8)	5 (5.7)	21 (4.0)	11 (7.2)
Serine (S)	TCN	11 (6.4)	25 (6.8)	36 (6.5)	8 (3.9)	12 (5.5)	15 (5.0)	29 (9.8)	7 (5.9)	31 (7.2)	3 (3.4)	44 (8.3)	12 (7.8)
		10 (5.8)	25 (6.8)	35 (6.3)	9 (4.4)	12 (5.5)	15 (5.0)	31 (10.3)	9 (7.6)	32 (7.4)	3 (3.4)	48 (9.1)	13 (8.5)
Threonine (T)	ACN	6 (3.5)	13 (3.5)	23 (4.2)	10 (4.9)	5 (2.3)	8 (2.6)	8 (2.7)	3 (2.5)	9 (2.1)	6 (6.8)	16 (3.0)	2 (1.3)
		7 (4.0)	12 (3.2)	23 (4.2)	10 (4.9)	5 (2.3)	9 (3.0)	7 (2.3)	2 (1.7)	12 (2.8)	5 (5.7)	13 (2.5)	2 (1.3)
Tyrosine (Y)	TAY	5 (2.9)	25 (6.8)	29 (5.2)	14 (6.8)	16 (7.3)	18 (5.9)	17 (5.7)	10 (8.4)	24 (5.5)	0 (0.0)	27 (5.1)	12 (7.8)
		5 (2.9)	26 (7.0)	29 (5.2)	14 (6.8)	17 (7.8)	18 (5.9)	16 (5.3)	11 (9.2)	23 (5.3)	0 (0.0)	31 (5.9)	13 (8.5)

Acidic

Aspartate (D)	GAY	2 (1.2)	7 (1.9)	18 (3.3)	14 (6.8)	4 (1.8)	4 (1.3)	2 (0.7)	2 (1.7)	10 (2.3)	1 (1.1)	11 (2.1)	1 (0.7)
		2 (1.2)	7 (1.9)	17 (3.1)	13 (6.3)	4 (1.8)	4 (1.3)	3 (1.0)	2 (1.7)	8 (1.9)	1 (1.1)	9 (1.7)	1 (0.7)
Glutamate (E)	GAR	3 (1.7)	7 (1.9)	5 (0.9)	7 (3.4)	7 (3.2)	8 (2.6)	3 (1.0)	5 (4.2)	5 (1.2)	4 (4.5)	8 (1.5)	2 (1.3)
		3 (1.7)	7 (1.9)	5 (0.9)	8 (3.9)	9 (4.1)	8 (2.6)	3 (1.0)	6 (5.0)	6 (1.4)	4 (4.5)	7 (1.3)	2 (1.3)

Basic

Arginine (R)	CGN	8 (4.6)	7 (1.9)	11 (2.0)	5 (2.4)	1 (0.5)	8 (2.6)	1 (0.3)	1 (0.8)	8 (1.8)	2 (2.3)	9 (1.7)	2 (1.3)
		8 (4.6)	7 (1.9)	11 (2.0)	5 (2.4)	1 (0.5)	8 (2.6)	1 (0.3)	1 (0.8)	7 (1.6)	2 (2.3)	10 (1.9)	2 (1.3)
Histidine (H)	CAY	3 (1.7)	8 (2.2)	16 (2.9)	6 (2.9)	7 (3.2)	1 (0.3)	2 (0.7)	1 (0.8)	5 (1.2)	1 (1.1)	6 (1.1)	2 (1.3)
		3 (1.7)	8 (2.2)	16 (2.9)	6 (2.9)	7 (3.2)	2 (0.7)	1 (0.3)	1 (0.8)	5 (1.2)	1 (1.1)	5 (0.9)	2 (1.3)
Lysine (K)	AAR	0 (0.0)	8 (2.2)	10 (1.8)	9 (4.4)	2 (0.9)	8 (2.6)	5 (1.7)	2 (1.7)	6 (1.4)	0 (0.0)	6 (1.1)	1 (0.7)
		0 (0.0)	8 (2.2)	12 (2.2)	8 (3.9)	2 (0.9)	8 (2.6)	5 (1.7)	2 (1.7)	6 (1.4)	0 (0.0)	6 (1.1)	1 (0.7)

International Union of Pure and Applied Chemistry (IUPAC) codes (N=A, G, C or T; Y=C or T; R=A or G) were used.