

Online Resource 1:

Species delimitation results for Thomas et al. 'New evidence for a cosmopolitan holothurian species at deep-sea reducing environments'.

bPTP output:

Max likelihood partition

Species 1 (support = 1.000)

Chiridota_rigida

Species 2 (support = 0.710) *# All reducing environment Chiridota*

Chiridota_sp_MH230104, Chiridota_heheva_JC67F0541b, Chiridota_heheva_NA034013,
Chiridota_heheva_PL4241, Chiridota_heheva_PL4242, Chiridota_heheva_PL431,
Chiridota_heheva_SQW58YC2, Chiridota_heheva_SY79YC1,
Chiridota_heheva_MW357261_COX1, Chiridota_sp_MW357262_COX1

Species 3 (support = 0.988)

Chiridota_laevis

Species 4 (support = 0.674)

Chiridota_albatrossii_complex1, Chiridota_albatrossii_complex2

Species 5 (support = 0.765)

Euapta_lappa

Species 6 (support = 0.765)

Euapta_tahitiensis

Most supported partition found by simple heuristic search

Species 1 (support = 1.000)

Chiridota_rigida

Species 2 (support = 0.710) *# All reducing environment Chiridota*

Chiridota_sp_MH230104, Chiridota_heheva_JC67F0541b, Chiridota_heheva_NA034013,
Chiridota_heheva_PL4241, Chiridota_heheva_PL4242, Chiridota_heheva_PL431,

Chiridota_heheva_SQW58YC2, Chiridota_heheva_SY79YC1,
Chiridota_heheva_MW357261_COX1, Chiridota_sp_MW357262_COX1

Species 3 (support = 0.988)

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Species 4 (support = 0.674)

Chiridota_albatrossii_complex1, Chiridota_albatrossii_complex2

Species 5 (support = 0.765)

Euapta_lappa

Species 6 (support = 0.765)

Euapta_tahitiensis

ASAP output:

Partition 1

Score: 1

Proba: 8.319739e-02

nb groups:4 (3)

Group[1] n: 2 ;id: Euapta_lappa Euapta_tahitiensis

Group[2] n: 3 ;id: Chiridota_albatrossii_complex1 Chiridota_albatrossii_complex2
Chiridota_laevis

Group[3] n: 10 *# All reducing environment Chiridota* ;id: MH230104_Chiridota_sp
MT707250_Chiridota_heheva_JC67F0541b MT707255_Chiridota_heheva_SQW58YC2
MT707256_Chiridota_heheva_SY79YC1 MW357261_COX1_Chiridota_heheva
MT707251_Chiridota_heheva_NA034013 MT707253_Chiridota_heheva_PL4242
MT707252_Chiridota_heheva_PL4241 MT707254_Chiridota_heheva_PL431
MW357262_COX1_Chiridota_sp

Group[4] n: 1 ;id: Chiridota_rigida

Partition 2

Score: 2

Proba: 7.365269e-01

nb groups:5 (4)

Group[1] n: 2 ;id: Euapta_lappa Euapta_tahitiensis

Group[2] n: 2 ;id: Chiridota_albatrossii_complex1 Chiridota_albatrossii_complex2

Group[3] n: 1 ;id: Chiridota_laevis

Group[4] n: 1 ;id: Chiridota_rigida

Group[5] n: 10 *# All reducing environment Chiridota* ;id: MH230104_Chiridota_sp
MT707250_Chiridota_heheva_JC67F0541b MT707255_Chiridota_heheva_SQW58YC2
MT707256_Chiridota_heheva_SY79YC1 MW357261_COX1_Chiridota_heheva
MT707251_Chiridota_heheva_NA034013 MT707253_Chiridota_heheva_PL4242
MT707252_Chiridota_heheva_PL4241 MT707254_Chiridota_heheva_PL431
MW357262_COX1_Chiridota_sp

ABGD output:

Primary partition example

Initial Partition with prior maximal distance $P=1.00e-01$; Barcode gap distance = 0.159

Distance JC69 Jukes-Cantor MinSlope=1.500000

Group[1] n: 2 ;id: Euapta_lappa Euapta_tahitiensis

Group[2] n: 3 ;id: Chiridota_albatrossii_complex1 Chiridota_albatrossii_complex2
Chiridota_laevis

Group[3] n: 1 ;id: Chiridota_rigida

Group[4] n: 10 *# All reducing environment Chiridota* ;id: MH230104_Chiridota_sp
MT707250_Chiridota_heheva_JC67F0541b MT707251_Chiridota_heheva_NA034013
MT707252_Chiridota_heheva_PL4241 MT707253_Chiridota_heheva_PL4242
MT707254_Chiridota_heheva_PL431 MT707255_Chiridota_heheva_SQW58YC2
MT707256_Chiridota_heheva_SY79YC1 MW357261_COX1_Chiridota_heheva
MW357262_COX1_Chiridota_sp

Euapta_lappa	0	0.268	0.274	0.274	0.301	0.067	0.296	0.290	0.313	0.315	0.313	0.315	0.296	0.296	0.290	0.279
Chiridota_albatrossii_complex1	0.268	0	0.035	0.094	0.242	0.274	0.219	0.211	0.214	0.216	0.214	0.214	0.216	0.216	0.211	0.229
Chiridota_albatrossii_complex2	0.274	0.035	0	0.107	0.239	0.276	0.221	0.219	0.224	0.226	0.224	0.224	0.219	0.219	0.219	0.239
Chiridota_laevis	0.274	0.094	0.107	0	0.247	0.268	0.221	0.221	0.226	0.226	0.226	0.229	0.224	0.226	0.221	0.232
Chiridota_rigida	0.301	0.242	0.239	0.247	0	0.301	0.234	0.239	0.239	0.239	0.239	0.234	0.242	0.239	0.245	0.247
Euapta_tahitiensis	0.067	0.274	0.276	0.268	0.301	0	0.296	0.287	0.310	0.310	0.310	0.313	0.296	0.296	0.290	0.279
MH230104_Chiridota_sp	0.296	0.219	0.221	0.221	0.234	0.296	0	0.008	0.031	0.033	0.031	0.035	0.019	0.017	0.021	0.041
MT707250_Chiridota_heheva_JC67F0541b	0.290	0.211	0.219	0.221	0.239	0.287	0.008	0	0.029	0.031	0.029	0.033	0.019	0.017	0.017	0.035
MT707251_Chiridota_heheva_NA034013	0.313	0.214	0.224	0.226	0.239	0.310	0.031	0.029	0	0.006	0.000	0.008	0.025	0.023	0.025	0.041
MT707252_Chiridota_heheva_PL4241	0.315	0.216	0.226	0.226	0.239	0.310	0.033	0.031	0.006	0	0.006	0.013	0.027	0.025	0.027	0.039
MT707253_Chiridota_heheva_PL4242	0.313	0.214	0.224	0.226	0.239	0.310	0.031	0.029	0.000	0.006	0	0.008	0.025	0.023	0.025	0.041
MT707254_Chiridota_heheva_PL431	0.315	0.214	0.224	0.229	0.234	0.313	0.035	0.033	0.008	0.013	0.008	0	0.033	0.031	0.033	0.045
MT707255_Chiridota_heheva_SQW58YC2	0.296	0.216	0.219	0.224	0.242	0.296	0.019	0.019	0.025	0.027	0.025	0.033	0	0.002	0.006	0.041
MT707256_Chiridota_heheva_SY79YC1	0.296	0.216	0.219	0.226	0.239	0.296	0.017	0.017	0.023	0.025	0.023	0.031	0.002	0	0.004	0.039
MW357261_COX1_Chiridota_heheva	0.290	0.211	0.219	0.221	0.245	0.290	0.021	0.017	0.025	0.027	0.025	0.033	0.006	0.004	0	0.039
MW357262_COX1_Chiridota_sp	0.279	0.229	0.239	0.232	0.247	0.279	0.041	0.035	0.041	0.039	0.041	0.045	0.041	0.039	0.039	0