

Supplementary Materials

Rambellisea gigliensis and *Rambellisea halocynthiae*, gen. et spp. nov. (Lulworthiaceae) from the Marine Tunicate *Halocynthia papillosa*

Martina Braconcini ¹, Susanna Gorrasi ¹, Massimiliano Fenice ^{1,2}, Paolo Barghini ¹ and Marcella Pasqualetti ^{1,3,*}

¹ Department of Ecological and Biological Sciences (DEB), University of Tuscia, 01100 Viterbo, Italy; martina.braconcini@unitus.it (M.B.); gorrasi@unitus.it (S.G.); fenice@unitus.it (M.F.); barghini@unitus.it (P.B.)

² Laboratory of Applied Marine Microbiology, CoNISM, Department of Ecological and Biological Sciences, University of Tuscia, 01100 Viterbo, Italy

³ Laboratory of Ecology of Marine Fungi, CoNISM, Department of Ecological and Biological Sciences, University of Tuscia, 01100 Viterbo, Italy

* Correspondence: mpasqual@unitus.it; Tel.: +39-0761-357750

List of Contents

Table S1. Substitution rates, gamma distribution shape parameter and proportion of invariable sites for each partition

Table S2. The variable sites detected in the nrITS region among *Rambellisea halocynthiae*, *R. gigliensis* and its neighbor species belonging to the genera *Paralulworthia*.

Table S3. The variable sites detected in the nrLSU region among *Rambellisea halocynthiae*, *R. gigliensis* and its neighbor species belonging to the genera *Paralulworthia*.

Table S4. The variable sites detected in the nrSSU region among *Rambellisea halocynthiae*, *R. gigliensis* and its neighbor species belonging to the genera *Paralulworthia*.

Figure S1. *Rambellisea gigliensis* sp. nov. HPa3 (MUT 6843). (a) 28-day-old colony: colony texture on MEAws at 25° C; (b) 28-day-old colony: colony texture on CMAws at 25° C.

Figure S2. *Rambellisea halocynthiae* sp. nov. HPa52 (MUT 6851). (a) 28-day-old colony on MEAws (Ø 9 cm) at 25° C (b) and reverse; (c) 28-day-old colony on CMAws (Ø 9 cm) at 25° C (d) and reverse

Citation: Braconcini, M.; Gorrasi, S.; Fenice, M.; Barghini, P.; Pasqualetti, M. *Rambellisea gigliensis* and *Rambellisea halocynthiae*, gen. et spp. nov. (Lulworthiaceae) from the Marine Tunicate *Halocynthia papillosa*. *J. Fungi* **2024**, *10*, 127. <https://doi.org/10.3390/jof10020127>

Academic Editor: Philippe Silar

Received: 20 November 2023

Revised: 24 January 2024

Accepted: 1 February 2024

Published: 3 February 2024



Copyright: © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Table S1. Substitution rates, gamma distribution shape parameter and proportion of invariable sites for each partition

	Substitution rates	Gamma distribution shape	Proportion of invariable site
Partition 1	gamma	0.6400	0.3970
Partition 2	gamma	0.3760	0
Partition 3	gamma	1.7790	0
Partition 4	gamma	0.2890	0
Partition 5	gamma	1.1200	0
Partition 6	gamma	0.3890	0

Table S2. The variable sites detected in the nrITS region among *Rambellisea halocynthiae*, *R. gigliensis* and its neighbor species belonging to the genera *Paralutworthia*.

Species	Position																
	20	23	24	44	46	54	56	57	94	101	102	103	104	108	109	113	114
<i>R. halocynthiae</i>	C	-	-	T	G	T	G	G	C	C	T	C	C	A	-	T	C
<i>R. gigliensis</i>	C	-	-	C	G	A	A	A	C	A	A	A	A	A	C	T	C
<i>P. candida</i>	-	A	A	T	A	-	T	G	A	C	A	C	G	C	A	C	A
<i>P. elbensis</i>	-	A	A	T	A	T	T	G	A	C	A	C	G	C	A	C	A
<i>P. gigaspora</i>	A	A	A	T	A	T	T	G	A	C	A	C	C	C	A	C	A
<i>P. halima</i>	A	A	A	T	A	T	T	G	A	C	A	C	C	C	A	C	A
<i>P. mediterranea</i>	A	A	A	T	A	T	T	G	A	C	A	C	C	C	A	C	A
<i>P. posidoniae</i>	A	A	A	T	A	T	T	G	A	C	A	C	C	C	A	C	A

Species	Position																
	119	120	121	122	123	129	131	132	159	170	171	245	317	329	340	365	366
<i>R. halocynthiae</i>	C	T	A	C	G	T	A	A	A	A	A	A	A	T	T	C	T
<i>R. gigliensis</i>	C	T	G	C	A	C	A	A	A	A	G	A	A	T	C	T	T
<i>P. candida</i>	A	C	C	A	G	T	C	C	G	C	A	C	G	C	T	-	-
<i>P. elbensis</i>	A	C	C	A	G	T	C	C	G	C	A	C	G	C	T	-	-
<i>P. gigaspora</i>	A	C	C	A	G	T	C	C	G	C	A	C	G	C	T	C	C
<i>P. halima</i>	A	C	C	A	G	T	C	C	G	C	A	C	G	C	T	C	C
<i>P. mediterranea</i>	A	C	C	A	G	T	C	C	G	C	A	C	G	C	T	C	C
<i>P. posidoniae</i>	A	C	C	A	G	T	C	C	G	C	A	C	G	C	T	C	C

Species	Position																
	368	369	370	371	373	374	376	377	384	385	386	400	429	430	439	447	464
<i>R. halocynthiae</i>	T	C	C	T	C	G	G	A	T	G	G	C	A	A	T	C	C
<i>R. gigliensis</i>	C	T	T	C	C	A	G	A	C	G	T	T	C	A	G	C	C
<i>P. candida</i>	A	C	C	T	T	T	C	G	T	A	G	C	T	C	G	T	T
<i>P. elbensis</i>	A	C	C	T	T	T	C	G	T	A	G	C	T	C	G	T	T
<i>P. gigaspora</i>	A	C	C	T	T	T	C	G	T	A	G	C	T	C	G	T	T
<i>P. halima</i>	A	C	C	T	T	T	C	G	T	A	G	C	T	C	G	T	T
<i>P. mediterranea</i>	A	C	C	T	T	T	C	G	T	A	G	C	T	C	G	T	T
<i>P. posidoniae</i>	A	C	C	T	T	T	C	G	T	A	G	C	T	C	G	T	T

Species	Position																
	465	470	474	486	487	488	509	512	513	514	515	516	531	532	576	578	582
<i>R. halocynthiae</i>	C	C	T	-	-	-	G	T	C	G	G	T	G	A	T	C	C
<i>R. gigliensis</i>	T	G	T	-	-	-	G	T	C	G	G	T	G	A	C	C	G
<i>P. candida</i>	C	T	C	C	C	A	A	C	A	-	-	-	A	G	C	A	C
<i>P. elbensis</i>	C	T	C	C	C	A	A	C	A	-	-	-	A	G	C	A	C

<i>P. gigaspora</i>	C	C	C	C	C	A	A	C	A	-	-	-	A	G	C	A	C
<i>P. halima</i>	C	C	C	C	C	A	A	C	A	-	-	-	A	G	C	A	C
<i>P. mediterranea</i>	C	C	C	C	C	A	A	C	A	-	-	-	A	G	C	A	C
<i>P. posidoniae</i>	C	C	C	C	C	A	A	C	A	-	-	-	A	G	C	A	C

	588	589	600
<i>R. halocynthiae</i>	A	C	A
<i>R. gigliensis</i>	C	T	A
<i>P. candida</i>	A	C	C
<i>P. elbensis</i>	A	C	C
<i>P. gigaspora</i>	A	C	C
<i>P. halima</i>	A	C	C
<i>P. mediterranea</i>	A	C	C
<i>P. posidoniae</i>	A	C	C

Table S3. The variable sites detected in the nrLSU region among *Rambellisea halocynthiae*, *R. gigliensis* and its neighbor species belonging to the genera *Paralutworthia*.

Species	Position																
	102	144	145	173	383	407	408	466	467	468	469	487	488	508	509	540	569
<i>R. halocynthiae</i>	T	G	G	C	C	T	C	C	G	A	T	T	T	C	T	T	T
<i>R. gigliensis</i>	T	A	C	T	A	T	C	T	G	A	C	C	C	C	T	C	C
<i>P. candida</i>	C	T	G	C	C	-	-	T	A	G	C	C	C	T	C	T	C
<i>P. elbensis</i>	C	T	G	C	C	-	-	T	A	G	C	C	C	T	C	T	C
<i>P. gigaspora</i>	C	T	G	C	C	-	-	T	A	G	C	C	C	T	C	T	C
<i>P. halima</i>	C	T	G	C	C	-	-	T	A	G	C	C	C	T	C	T	C
<i>P. mediterranea</i>	C	T	G	C	C	-	-	T	A	G	C	C	C	T	C	T	C
<i>P. posidoniae</i>	C	T	G	C	C	-	-	T	A	G	C	C	C	T	C	T	C

Species	Position															
	601	643	668	764	765	772	808	809	878	1016	1050	1051	1052	1062	1070	1071
<i>R. halocynthiae</i>	T	T	A	A	A	A	T	A	T	T	C	C	T	G	T	G
<i>R. gigliensis</i>	T	T	A	A	A	A	T	A	T	T	T	C	T	G	C	G
<i>P. candida</i>	C	C	C	G	G	G	C	G	C	C	C	A	C	A	T	C
<i>P. elbensis</i>	C	C	C	G	G	G	C	G	C	C	C	A	C	A	T	C
<i>P. gigaspora</i>	C	C	C	G	G	G	C	G	C	C	C	A	C	A	T	C
<i>P. halima</i>	C	C	C	G	G	G	C	G	C	C	C	A	C	A	T	C
<i>P. mediterranea</i>	C	C	C	G	G	G	C	G	C	C	C	A	C	A	T	C
<i>P. posidoniae</i>	C	C	C	G	G	G	C	G	C	C	C	A	C	A	T	C

Table S4. The variable sites detected in the nrSSU region among *Rambellisea halocynthiae*, *R. gigliensis* and its neighbor species belonging to the genera *Paralutworthia*.

Species	Position																
	43	99	100	101	107	110	121	129	130	140	161	219	323	349	350	376	1126
<i>R. halocynthiae</i>	T	T	C	G	A	G	A	C	T	T	T	A	A	A	G	C	T
<i>R. gigliensis</i>	T	A	A	C	C	T	G	T	T	T	T	A	A	G	A	T	T

<i>P. candida</i>	G	T	C	G	G	T	G	C	A	C	C	G	T	G	A	T	A
<i>P. elbensis</i>	G	T	C	G	G	T	G	C	A	C	C	G	T	G	A	T	A
<i>P. gigaspora</i>	G	T	C	G	G	T	G	C	A	C	C	G	T	G	A	T	A
<i>P. halima</i>	G	T	C	G	G	T	G	C	A	C	C	G	T	G	A	T	A
<i>P. mediterranea</i>	G	T	C	G	G	T	G	C	A	C	C	G	T	G	A	T	T
<i>P. posidoniae</i>	G	T	C	G	G	T	G	C	A	C	C	G	T	G	A	T	A

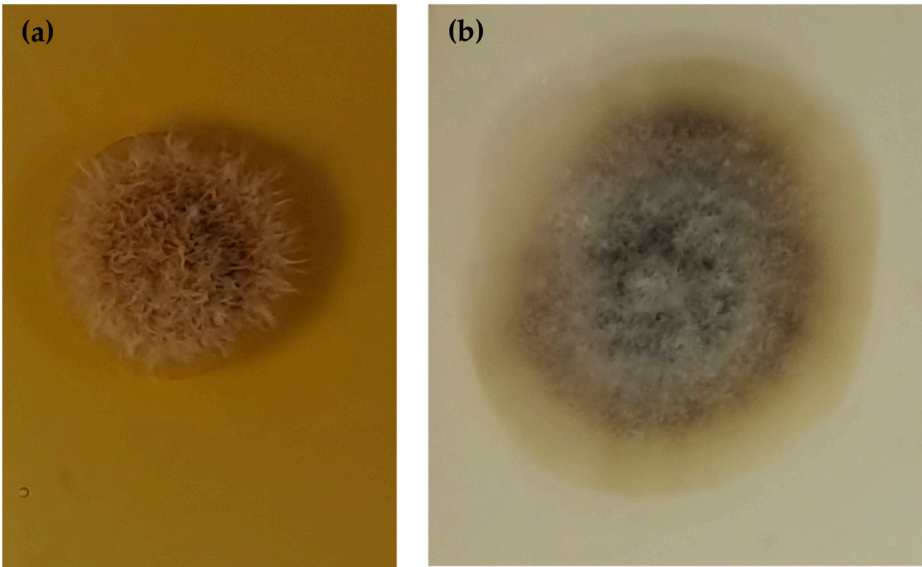


Figure S1. *Rambellisea gigliensis* sp. nov. HPa3 (MUT 6843). (a) 28-day-old colony: colony texture on MEAws at 25° C; (b) 28-day-old colony: colony texture on CMAws at 25° C.

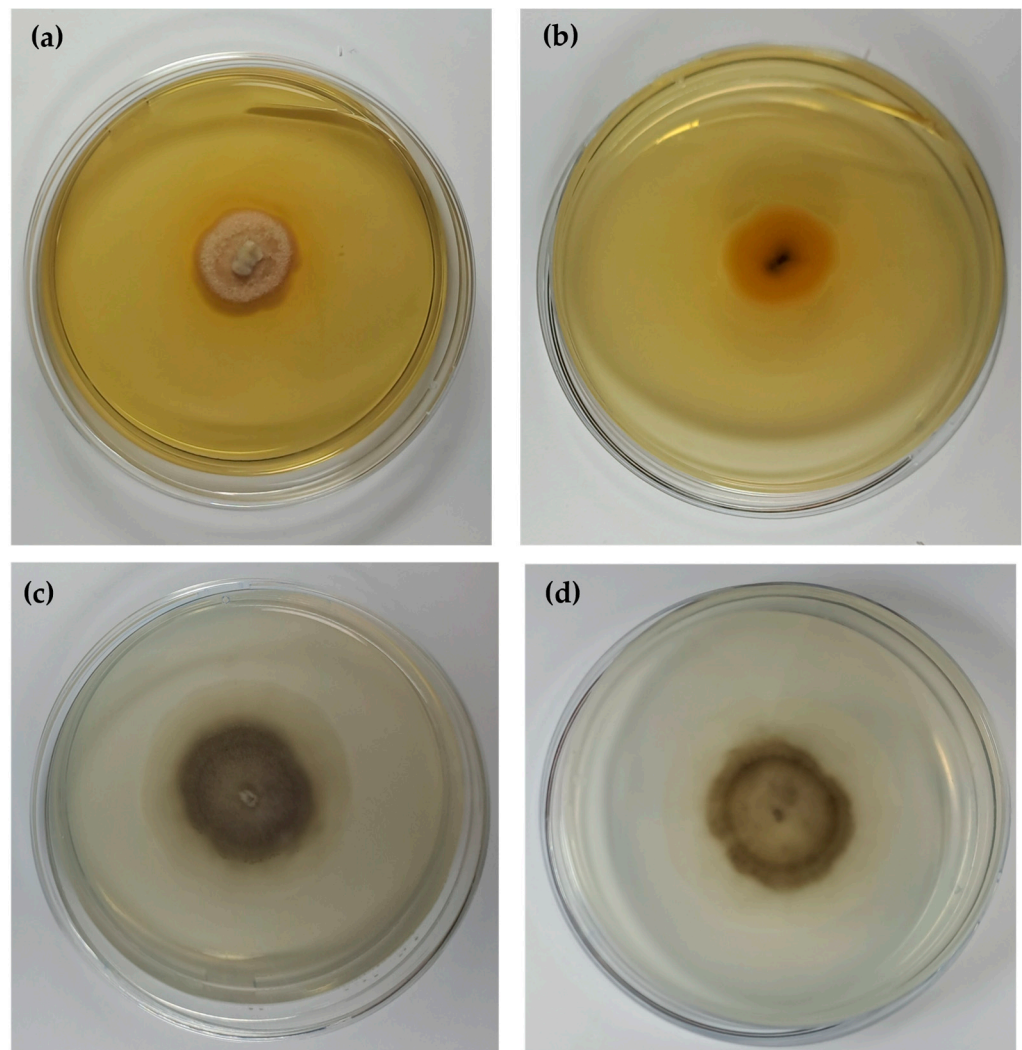


Figure S2. *Rambellisea halocynthiae* sp. nov. HPa52 (MUT 6851). (a) 28-day-old colony on MEA (Ø 9 cm) at 25° C (b) and reverse; (c) 28-day-old colony on CMA (Ø 9 cm) at 25° C (d) and reverse.