Scalusamides A−C, New Pyrrolidine Alkaloids from the Marine-Derived Fungus *Penicillium citrinum*

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Three new pyrrolidine alkaloids, scalusamides A−C (**1**−**3**), were isolated from the cultured broth of the fungus *Penicillium citrinum*, which was separated from the gastrointestine of a marine fish, and the structures were elucidated by spectroscopic data. The absolute stereochemistry of C-2 in the pyrrolidine unit was determined by HPLC analysis of a Marfey's derivative of the hydrolysate of **1**, while that of **2** and **3** was assigned by comparison of spectroscopic data of **3** and reductive products of **1** and **2**. On the other hand, each of **1**−**3** was found to be a mixture of epimers at C-7. Scalusamide A (**1**) exhibited antifungal and antibacterial activities.

Marine-derived fungi *Penicillium* sp. have proven to be a rich source of structurally unique and biologically active secondary metabolites.[1] In our search for new metabolites from marine-derived fungi,[2] three new pyrrolidine alkaloids, scalusamides A−C (**1**−**3**), were isolated from the cultured broth of the fungus *Penicillium citrinum*, which was separated from the gastrointestine of an Okinawan parrot fish. In this paper, we describe the isolation and structure elucidation of **1**−**3**.

The fungus *Penicillium citrinum* (strain N055) was separated from the gastrointestine of the parrot fish *Scalus ovifrons* collected at Hedo Cape, Okinawa Island, and grown in PYG liquid medium containing seawater for 10 days at 25 °C. The supernatant of the culture broth (12 L) was extracted with EtOAc, and the EtOAc-soluble portions were subjected to Si gel column chromatography and then C_{18} HPLC to afford scalusamides A (**1**, 10.6 mg), B (**2**, 1.0 mg), and C (**3**, 0.9 mg) together with known pyrrolo [2,1-*b*]oxazine compounds **4** and **5**.[3,4]

Scalusamide A (**1**) was obtained as an optically active colorless oil {$[\alpha]_D^{22}$ −28° (*c* 1.0, $CHCl_3$)}. The molecular formula of **1** was revealed to be $C_{16}H_{27}NO_3$ by HRFABMS [*m/z* 282.2058, $(M + H)^+$, −1.1 mmu]. The IR spectrum suggested the presence of OH/NH (3405 cm^{-1}) and carbonyl group(s) (1719 and 1621 cm^{-1}). The ^{13}C NMR (Table 1) spectrum of **1** disclosed two sets of 16 carbon signals due to a ketone [δ_C 206.88 (both)], an amide carbonyl (δ_C 170.81 and 171.24), two sp^2 methines (both δ_C 130.67 and 124.93), three relatively higher-field sp^3 carbons [δ_C 65.75 and 66.24 (CH_2), 60.91 and 61.07 (CH), and 48.09 and 48.00 (CH_2)] adjacent to a heteroatom, an sp^3 methine (δ_C 52.96 and 52.93), six sp^3 methylenes [δ_C 39.26 and 39.14, 32.19 (both), 28.75 (both), 27.88 and 27.96, 24.23 and 24.12, and 22.83 and 22.81], and two methyls [δ_C 17.68 (both) and 12.78 and 13.49]. The chemical shifts for each set of carbon signals were close to each other, probably due to a mixture of diastereomers at two chiral centers (C-2 and C-7) or rotational isomers for an amide carbonyl group (C-6). The two components (**1a** and **1b**) of scalusamide A (**1**) were separated by C_{18} HPLC as described below, and C-2 in **1** was found to have a single configuration. Accordingly, scalusamide A (**1**) was assigned as an epimeric mixture at C-7. Actually, the methine carbon of C-7 in **1a** and **1b** was epimerized easily, since **1a** and **1b** were converted to each other soon after separation. Proton and carbon signals for **1a** and **1b** were assigned by detailed analyses of the HMQC spectrum of **1** as well as ^1H NMR data (Table 1) for **1a** and **1b**.

Table 1. ^1H and ^{13}C NMR Data of Scalusamide A (**1a**,**b**) in $CDCl_3$

	1a				**1b**			
position	δ_C		δ_H	m, Hz	δ_C		δ_H	m, Hz
2	60.91	CH	4.23	m	61.07	CH	4.24	m
3	27.88	CH_2	2.06	m	27.96	CH_2	2.07	m
			1.64	m			1.65	m
4	24.23	CH_2	1.96	m	24.12	CH_2	1.96	m
			1.86	m			1.86	m
5	48.09	CH_2	3.56	m	48.00	CH_2	3.58	m
			3.41	m			3.47	
6	170.81	C			171.24	C		
7	52.96	CH	3.55	m	52.93	CH	3.56	m
8	206.88	C			206.88	C		
9	39.26	CH_2	2.53	m	39.14	CH_2	2.50	m
			2.49	m			2.48	m
10	22.83	CH_2	1.55[a]	m	22.81	CH_2	1.55[a]	m
11	28.75	CH_2	1.31[a]	m	28.75	CH_2	1.31[a]	m
12	32.19	CH_2	1.96[a]	m	32.19	CH_2	1.96[a]	m
13	130.67	CH	5.38	m	130.67	CH	5.38	m
14	124.93	CH	5.41	m	124.93	CH	5.40	m
15	17.68	CH_3	1.63[b]	d, 4.6	17.68	CH_3	1.62[b]	
16	65.75	CH_2	3.77	d, 11.3	66.24	CH_2	3.69	d, 11.3
			3.58	m			3.58	m
17	12.78	CH_3	1.37[b]	d, 6.9	13.49	CH_3	1.40[b]	d, 6.9

[a] 2H. [b] 3H.

The gross structure of scalusamide A (**1**) was elucidated by spectroscopic data including 2D NMR data such as $^1H-^1H$ COSY and HMBC spectra. Three proton networks from H-2 to H_2-5 and H_2-16, from H-7 to H_3-17, and from H_2-9 to H_3-15 were suggested by analysis of the $^1H-^1H$ COSY spectrum (Figure 1). The presence of an *E*-double bond at C-13−C-14 was deduced from the chemical shift of the allylic carbon (C-15, δ_C 17.68).[5] Connection among the three proton networks was revealed by HMBC corre-

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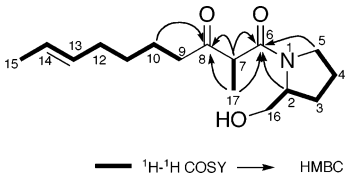
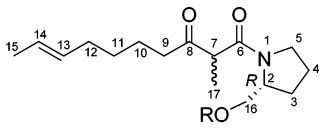
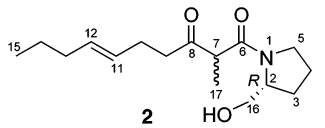


Figure 1. Selected 2D NMR correlations for scalusamide A (**1**).

Chart 1



1 : R = H
6a : R = (*S*)-MTPA
6b : R = (*R*)-MTPA



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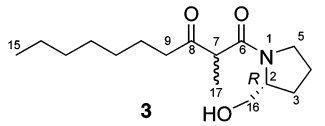

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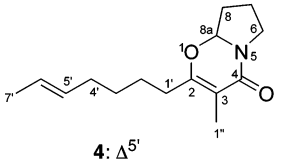
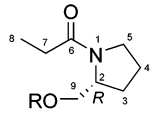


4: $\Delta^{5'}$
5: 5',6'-dihydro



7 : R = H
8a : R = (*S*)-MTPA
8b : R = (*R*)-MTPA

lations.Correlations for H-2, H_2-5, H-7, and H_3-17 to an amide carbonyl carbon at δ_C 170.81 (171.24) suggested that C-7 was attached to C-2 and C-5 through a secondary amide carbonyl groups. The existence of a ketone carbonyl at C-8 was implied by HMBC correlations for H-7, H_2-10, and H_3-17 to the carbon at δ_C 206.88. The relatively higher-field chemical shifts for H_2-16 (δ_H 3.77 and 3.58 for **1a**; δ_H 3.69 and 3.58 for **1b**) indicated that a hydroxyl group was attached to C-16. This was also supported by lower-field shift of H_2-16 by esterification with MTPA chloride (vide infra). Therefore, the gross structure of scalusamide A was elucidated to be **1**.

Scalusamide A (**1**) was converted into (*S*)- and (*R*)-MTPA esters (**6a** and **6b**, respectively). The ^{1}H NMR spectra of **6a** and **6b** were compared with those of (*S*)- and (*R*)-MTPA esters (**8a** and **8b**, respectively) of *R*-prolinol propionamide[6,7] (**7**). The absolute configuration at C-2 was elucidated on the basis of chemical shift differences and signal patterns of two geminal protons[8] at C-16 of **6a** and **6b** and those at C-9 of **8a** and **8b**, respectively (Figure 2). The chemical shift differences (0.17 and 0.26 ppm, respectively) of H_2-16 for **6a** and **6b** showed the same tendency as those of **8a** and **8b** (0.18 and 0.21 ppm, respectively), suggesting the 2*R*-configuration and a single isomer for C-2. Furthermore, scalusamide A (**1**) was hydrolyzed using 6 N hydrochloric acid at 120 °C for 24 h to give prolinol, which was converted into a Marfey's derivative by treatment with 1-fluoro-2,4-dinitrophenyl-5-L-alaninamide[9] (FDAA). HPLC analyses of the FDAA derivative of the scalusamide A hydrolysate and those of authentic *S*- and *R*-prolinol disclosed the presence of an *R*-prolinol in the hydrolysate. Thus, the absolute configuration at C-2 in **1** was determined to be *R*.

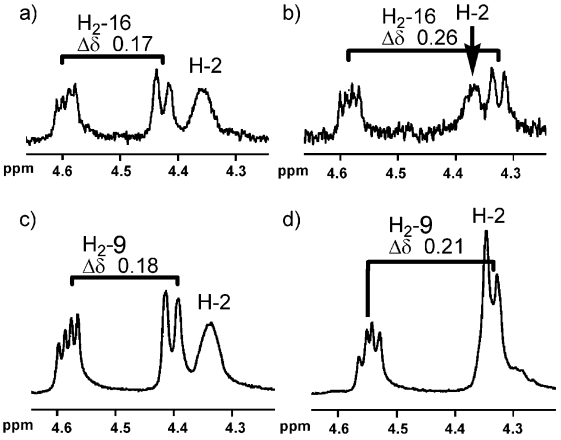


Figure 2. Proton signal patterns of H_2-16 for (a) (*S*)- and (b) (*R*)-MTPA esters (**6a** and **6b**, respectively) of scalusamide A (**1**) and H_2-9 for (c) (*S*)- and (d) (*R*)-MTPA esters (**8a** and **8b**, respectively) of *R*-prolinol propionamide (**7**).

The amide bond rotation for N-1−C-6 in **1** was examined on the basis of NMR data of prolinol propioamide as a model compound for **1**. In the ^{13}C NMR spectrum for prolinol propionamide, two sets of eight carbon signals due to *trans* and *cis* conformers of the amide bond were observed in the ratio of ca. 9:1.[7] The major signal set corresponded well to the carbon signals of **1a** and **1b**, while the profile of the minor set was different from those of **1a** and **1b**. Thus, the amide bond at N-1−C-6 of scalusamide A (**1**) was assigned as *trans* configured from the ^{13}C NMR spectrum. These results suggested that two components (**1a** and **1b**) were isomers at C-7. Although two components **1a** and **1b** in **1** were separated by C_{18} HPLC carried out using a MeOH−H_2O solvent system, it was easily epimerized.

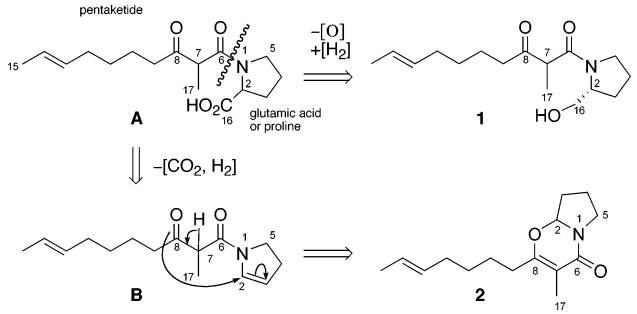
The molecular formula of scalusamide B (**2**) was established to be $C_{16}H_{27}NO_3$ by HRFABMS [*m/z* 282.2073, $(M + H)^+$, +0.4 mmu], which was the same as that of scalusamide A (**1**). The ^{13}C NMR data (Table 2) were similar to those of **1**, except for chemical shifts of three carbons due to two olefins and a terminal methyl. Detailed analyses of the ^{1}H−^{1}H COSY and HMQC spectra revealed the connection from the terminal methyl at C-15 to the olefinic methine (C-12) through two methylenes (C-13 and C-14), indicating that scalusamide B (**2**) possessed the double bond at C-11−C-12. The *E*-geometry of the double bond was suggested by the *J*(H-11/H-12) value (15.5 Hz). On the other hand, scalusamide C (**3**) was revealed to have the molecular formula $C_{16}H_{29}NO_3$ by HRFABMS [*m/z* 284.2216, $(M + H)^+$, −1.0 mmu], which was larger than that of **1** by 2 amu. ^{1}H and ^{13}C NMR data (Table 2) of **3** differed from those of **1** only in the absence of two olefin signals, suggesting that scalusamide C (**3**) had a saturated carbon chain. Each of scalusamides A (**1**) and B (**2**) was reduced with palladium-charcoal catalyst in hydrogen atmosphere, and the spectral data of the reductive products were identical with those of scalusamide C (**3**), thus indicating that the absolute configuration at C-2 in **2** and

Table 2. ^{13}C NMR Data of Scalusamides B (**2**) and C (**3**) in $CDCl_3$

	2			**3**		
position	δ_C			δ_C		
2	61.33	61.52[a]	CH	61.32	61.53[a]	CH
3	28.28	28.20	CH_2	28.28	28.19	CH_2
4	24.48	24.35	CH_2	24.48	24.36	CH_2
5	48.32	48.20	CH_2	48.31	48.18	CH_2
6	171.00	171.52	C	171.10	171.58	C
7	53.30	53.37	CH	53.33	53.36	CH
8	206.49		C	207.22		C
9	39.45	39.73	CH_2	39.43	39.67	CH_2
10	26.53	26.47	CH_2	24.48	24.36	CH_2
11	128.15		CH	29.06		CH_2
12	131.69	131.63	CH	29.04		CH_2
13	34.56		CH_2	31.62		CH_2
14	22.51		CH_2	22.56		CH_2
15	12.99		CH_3	14.03		CH_3
16	66.46	67.12	CH_2	66.52	67.13	CH_2
17	13.61	13.71	CH_3	13.04	13.77	CH_3

[a] These columns were due to minor signals.

Scheme 1. Plausible Biosynthetic Scheme of Scalusamide A (**1**) and Pyrrolo[2,1-*b*]oxazine Compound (**4**)



3 was *R*. Therefore, the structures of scalusamides B and C were concluded to be **2** and **3**, respectively.

Scalusamides A−C (**1**−**3**) are new pyrrolidine alkaloids with a 2-methyl-3-keto C_{10} acyl group. These alkaloids may be biogenetically related to known pyrrolo[2,1-*b*]oxazines[3,4] such as **4** and **5** and brevioxime[10] isolated from *Penicillium brevicompactum*. A plausible precursor **A**, which may be derived from glutamic acid or proline and a pentaketide, is considered to be converted into scalusamides by reduction of the carboxyl group at C-16 (Scheme 1), while pyrrolo[2,1-*b*]oxazines may be generated by decarboxylation of C-16 in **A**, and then cyclization via **B**. Scalusamide A (**1**) exhibited antifungal activity against *Cryptococcus neoformans* (MIC 16.7 μg/mL) and antibacterial activity against *Micrococcus luteus* (MIC 33.3 μg/mL).

Experimental Section

General Experimental Procedures. ^1H and ^{13}C NMR spectra were recorded on a Bruker AMX 600 MHz spectrometer using 2.5 mm micro cells for $CDCl_3$ (Shigemi Co., Ltd.). FAB mass spectra were obtained on a JEOL HX-110 spectrometer using nitrobenzyl alcohol as a matrix. *R*-Prolinol was purchased from Sigma-Aldrich. *S*-Prolinol was prepared from L-proline by reduction using $LiAlH_4$.[11]

Fungal Material and Fermentation. The fungus *Penicillium citrinum* (strain number N055) was isolated from the gastrointestine of the parrot fish *Scalus ovifrons*, which was collected at Hedo Cape, Okinawa Island. Subcultures of the fungus are deposited at Graduate School of Pharmaceutical Sciences, Hokkaido University. The fungus was grown in PYG seawater medium (peptone, 1%; D-glucose, 2%; yeast extract, 0.5%; pH 7.5) rotary-shaking at 500 rpm for 10 days at 25 °C. The culture broth (12 L) was filtered.

Extraction and Separation. The supernatant (12 L) of the culture broth was extracted with EtOAc (1 L × 2). Parts (676 mg) of the EtOAc-soluble portions (1.54 g, wet weight) were subjected to Si gel ($CHCl_3$/MeOH, 95:5) and then amino-Si gel (*n*-hexane/EtOAc, 2:1) column chromatographies followed by C_{18} HPLC (YMC Pack Pro C18, YMC Co., Ltd., 10 × 250 mm; eluent, CH_3CN/H_2O, 6:4; flow rate, 2 mL/min; UV detection at 220 nm) to afford scalusamides A (**1**, 10.6 mg, wet weight, t_R 25 min), B (**2**, 1.0 mg, t_R 27 min), and C (**3**, 0.9 mg, t_R 30 min). Compounds **4** and **5** were obtained from different fractions of the EtOAc-soluble materials.

Scalusamide A (1): colorless amorphous solid; $[\alpha]_D^{22}$ −28° (*c* 1.0, $CHCl_3$); IR (KBr) ν_{max} 3405, 2923, 1719, 1621 cm^{-1}; ^1H and ^{13}C NMR, see Table 1; FABMS *m/z* 282 $(M + H)^+$; HRFABMS (*m/z* 282.2058 $[(M + H)^+$, calcd for $C_{16}H_{28}NO_3$, 282.2069].

Scalusamide B (2): colorless amorphous solid; $[\alpha]_D^{26}$ −13° (*c* 0.2, $CHCl_3$); IR (KBr) ν_{max} 3411, 2923, 1720, 1626 cm^{-1}; ^1H NMR ($CDCl_3$) δ 5.42 (1H, dt, *J* = 15.5 and 7.0 Hz, H-12), 5.34 (1H, dt, *J* = 15.5 and 7.0 Hz, H-11), 4.23 (1H, m, H-2), 3.76 (0.5H, d, *J* = 11.0 Hz, H-16), 3.66 (0.5H, d, *J* = 11.0 Hz, H-16), 3.60 ∼ 3.50 (3H, m, H-5, H-7, and H-16), 3.45 (0.5H, m, H-5), 3.40 (0.5H, m, H-5), 2.64 ∼ 2.50 (2H, m, H_2-9), 2.25 (2H, m, H_2-10), 2.05 (1H, m, H-2), 2.00−1.90 (3H, m H-3 and H_2-13), 1.86 (1H, m, H-3), 1.70−1.60 (1H, m, H-2), 1.41 (1.5H, d, *J* = 7.0 Hz, H_3-17), 1.36 (1.5H, d, *J* = 7.0 Hz, H_3-17), 1.32 (2H, m, H_2-14), and 0.87 (3H, t, *J* = 7.3 Hz, H_3-15); ^{13}C NMR, see Table 2; FABMS *m/z* 282 $(M + H)^+$; HRFABMS *m/z* 282.2073 $[(M + H)^+$, calcd for $C_{16}H_{28}NO_3$, 282.2069].

Scalusamide C (3): colorless amorphous solid; $[\alpha]_D^{26}$ −13° (*c* 0.2, $CHCl_3$); IR (KBr) ν_{max} 3420, 2923, 1721, 1627 cm^{-1}; ^1H NMR ($CDCl_3$) δ 4.20 (1H, m, H-2), 3.74 (0.5H, d, *J* = 11.0 Hz, H-16), 3.66 (0.5H, d, *J* = 11.0 Hz, H-16), 3.60−3.50 (3H, m, H-5, H-7, and H-16), 3.43 (0.5H, m, H-5), 3.41 (0.5H, m, H-5), 2.52−2.40 (2H, m, H_2-9), 2.03 (1H, m, H-2), 1.94 (1H, m, H-3), 1.84 (1H, m, H-3), 1.68−1.56 (1H, m, H-2), 1.52 (2H, m, H_2-10), 1.37 (1.5H, d, *J* = 7.0 Hz, H_3-17), 1.32 (1.5H, d, *J* = 7.0 Hz, H_3-17), 1.30−1.15 (8H, m, H_2-11−H_2-14), and 0.84 (3H, t, *J* = 7.3 Hz, H_3-15); ^{13}C NMR, see Table 2; FABMS *m/z* 284 $(M + H)^+$; HRFABMS *m/z* 284.2216 $[(M + H)^+$, calcd for $C_{16}H_{30}NO_3$, 284.2226].

Preparation of (*S*)-MTPA Ester (6a) of Scalusamide A (1). To a CH_2Cl_2 solution (50 μL) of scalusamide A (**1**, 0.3 mg) were added 4-(dimethylamino)pyridine (50 μg), triethylamine (51 μL), and (*R*)-(−)-MTPACl (3 μL) at 4 °C, and stirring was continued for 5 h. *N*,*N*-Dimethyl-1,3-propanediamine (3 μL) was added, and the reaction mixture was stirred for 5 min. After evaporation of the solvent in vacuo, the residue was subjected to a SiO_2 gel column (hexane/EtOAc, 4:1) and then Si gel HPLC (YMC-Pack SIL-06, 4.6 × 250 mm: eluent, hexane/2-propanol, 9:1; flow rate 1.0 mL/min; UV detection at 230 nm) to afford the (*S*)-MTPA ester (**6a**, 0.1 mg, t_R 14.4 min) of **1**. **6a**: colorless oil; δ 7.42 (2H, m, Ph), 7.39 (3H, m, Ph), 5.42−5.32 (2H, m, H-11 and H-12), 4.59 (1H, d, *J* = 11.0 Hz, H-16), 4.42 (1H, d, *J* = 11.0 Hz, H-16), 4.36 (1H, m, H-2), 3.46 (3H, m, OCH_3), 3.46−3.30 (2H, m), 3.26 (1H, m), 2.52−2.40 (2H, m, H_2-9), 2.10−1.70 (6H, m), 1.60 (3H, d, *J* = 7.0 Hz, H_3-15), 1.60−1.50 (4H, m), 1.30 (3H, d, *J* = 7.0 Hz, H_3-17), and 1.28 (2H, m); FABMS *m/z* 498 $(M + H)^+$; HRFABMS *m/z* 498.2458 $[(M + H)^+$, calcd for $C_{26}H_{34}F_3NO_5$, 498.2467].

Preparation of (*R*)-MTPA Ester (6b) of Scalusamide A (1). Scalusamide A (**1**, 0.3 mg) was treated with (*S*)-(+)-MTPACl (3 μL) by the same procedure as described above to afford the (*R*)-MTPA ester (**6b**, 0.1 mg) of **1**. **6b**: colorless oil; ^1H NMR ($CDCl_3$) δ 7.42 (2H, m, Ph), 7.35 (3H, m, Ph), 5.42−5.32 (2H, m, H-11 and H-12), 4.58 (1H, d, *J* = 11.0 Hz, H-16), 4.37 (1H, m, H-2), 4.32 (1H, d, *J* = 11.0 Hz, H-16), 3.45 (3H, m, OCH_3), 3.46−3.30 (2H, m), 3.24 (1H, m), 2.52−2.40 (2H, m, H_2-9), 2.00−1.70 (6H, m), 1.60 (3H, d, *J* = 7.0 Hz, H_3-15), 1.60−1.50 (4H, m), 1.28 (3H, d, *J* = 7.0 Hz, H_3-17), and 1.28 (2H, m); FABMS *m/z* 498 $(M + H)^+$; HRFABMS *m/z* 498.2478 $[(M + H)^+$, calcd for $C_{26}H_{34}F_3NO_5$, 498.2467].

Preparation of (*S*)-MTPA Ester (8a) of *R*-Prolinol Propionamide (7). *R*-Prolinol propionamide (**7**, 0.5 mg) was treated with (*R*)-(−)-MTPACl (1 μL) by the same procedure as described above to afford the (*S*)-MTPA ester (**8a**, 1.1 mg) as a colorless oil: ^1H NMR ($CDCl_3$) δ 7.48 (2H, m, Ph), 7.39

(3H, m, Ph), 4.58 (1H, d, J = 11.0 Hz, H-9), 4.40 (1H, d, J = 11.0 Hz, H-9), 4.34 (1H, m, H-2), 3.52 (3H, m, OCH_3), 3.38 (1H, m), 3.28 (1H, m), 2.28 (2H, m), 2.00−1.90 (4H, m), and 1.13 (3H, t, J = 7.0 Hz); FABMS *m/z* 374 $(M + H)^+$; HRFABMS *m/z* 374.1586 [$(M + H)^+$, calcd for $C_{18}H_{22}F_3NO_4$, 374.1579].

Preparation of (*R*)-MTPA Ester (8b) of *R*-Prolinol Propionamide (7). *R*-Prolinol propionamide (**7**, 0.5 mg) was treated with (*S*)-(+)-MTPACl (1 μL) by the same procedure as described above to afford the (*R*)-MTPA ester (**8b**, 1.0 mg) as a colorless oil: ^{1}H NMR ($CDCl_3$) δ 7.50 (2H, m, Ph), 7.39 (3H, m, Ph), 4.54 (1H, d, J = 11.0 Hz, H-9), 4.33 (2H, m, H-2 and H-9), 3.52 (3H, m, OCH_3), 3.32 (1H, m), 3.19 (1H, m), 2.19 (2H, m), 2.00−1.70 (4H, m), and 1.09 (3H, t, J = 7.0 Hz); FABMS *m/z* 374 $(M + H)^+$; HRFABMS *m/z* 374.1567 [$(M + H)^+$, calcd for $C_{18}H_{22}F_3NO_4$, 374.1579].

HPLC Analysis of FDAA Derivative of Scalusamide A Hydrolysate. Scalusamide A (**1**, 0.1 mg) was treated with 6 N aqueous HCl (100 μL) at 110 °C for 24 h. The excess HCl was removed by N_2 gas, and an aqueous solution (20 μL) of the hydrolysate was reacted with 1% FDAA/acetone (5 μL) and 1 M $NaHCO_3$ (10 μL) at 40 °C for 1 h. After cooling to room temperature, the reaction mixture was neutralized with 2 N aqueous HCl (5 μL). The solvent was evaporated, and to the residue was added DMSO (50 μL). The FDAA derivatives of standard (*S*)- and (*R*)-prolinol were prepared by the same procedure as described above. The FDAA derivatives of hydrolysates of **1** and standard amino acids were subjected to C_{18} HPLC analyses (Cadenza CD-C18, Imtakt Co. Ltd., 4.6 × 250 mm; eluent, $CH_3CN/H_2O/CF_3CO_2H$, 45:55:0.1; flow rate, 0.3 mL/min; UV detection at 340 nm). The retention times (min) of FDAA derivatives of authentic (*S*)- and (*R*)-prolinols were 14.4 and 15.2 min, respectively, and that of scalusamide A hydrolysate was found to be 15.2 min.

Catalytic Hydrogenation of Scalusamides A (1) and B (2). Scalusamide A (**1**, 0.3 mg) was treated with palladium-charcoal in MeOH under hydrogen atmosphere at room temperature for 2 h. After filtration of the catalyst, the solvent was evaporated. The residue was subjected to C_{18} HPLC (YMC Pack Pro C18, 10 × 250 mm; eluent, CH_3CN/H_2O, 6:4; flow rate, 2 mL/min; UV detection at 220 nm) to afford compound **3** (0.2 mg). Scalusamide B (**2**, 0.3 mg) was reduced by the same procedure as described above to afford compound **3** (0.1 mg). Spectral data of compound **3** derived from **1** and **2** were identical with those of scalusamide C (**3**).

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