

Supplementary data

Antimicrobial metabolites from *Streptomyces* sp. strain PDH23 derived from marine sponge *Rhabdastrella globostellata* Huyen et al., 2020; Bangladesh J Pharmacol. 2020; 15: 69-70.

3-Methyl-5-hexanolide 3-O-β-D-glucopyranoside (1): white solid; $[\alpha]_D^{24}$: -11.3 (c 0.5, MeOH); $^1\text{H-NMR}$ (CD_3OD , 500 MHz): δ 4.52 (1H, m, H-6'a), 4.51 (1H, m, H-5), 4.48 (1H, d, J = 8.0 Hz, H-1'), 3.68 (1H, dd, J = 2.0, 12.0 Hz, H-6'b), 3.37 (1H, m, H-5'), 3.30 (1H, m, H-3'), 3.19 (1H, d, J = 9.5 Hz, H-4'), 3.13 (1H, dd, J = 8.0, 9.5 Hz, H-2'), 2.86 (1H, d, J = 16.0 Hz, H-2a), 2.70 (1H, d, J = 16.0 Hz, H-2b), 2.18 (1H, dd, J = 11.5, 14.5 Hz, H-4a), 1.96 (1H, dd, J = 3.5, 14.5 Hz, H-4a), 1.46 (3H, s, H-7), 1.40 (3H, d, J = 6.5 Hz, H-6). $^{13}\text{C-NMR}$ (CD_3OD , 125 MHz): δ 175.1 (C-1), 42.6 (C-2), 76.6 (C-3), 45.1 (C-4), 74.9 (C-5), 21.2 (C-6), 26.2 (C-7), 98.5 (C-1'), 74.9 (C-2'), 77.8 (C-3'), 72.0 (C-4'), 78.0 (C-5'), 63.3 (C-6'). HR-ESI-MS (positive): m/z 307.1385 $[\text{M} + \text{H}]^+$ (calcd. for $\text{C}_{13}\text{H}_{23}\text{O}_8$, 307.1393).

Acid hydrolysis of compound 1: Compound **1** (1.0 mg) was heated in 1N HCl (500 μL) at 80 °C for 2 hours, then the solution was extracted with ethyl acetate (1 mL x 3). The aqueous layer was neutralized with NH_4OH and then dried under reduced pressure. The obtained residue was redissolved in 150 μL pyridine containing 10 μmol of L-cysteine methyl ester and heated at 80 °C for 1 hour. 6 μL *o*-tolylisothiocyanate was added, and the solution was heated for another hour. The reaction solution was then analyzed by HPLC using cosmosil 5C18-MS-II column (4.6 x 150 mm), mobile phase of 20% acetonitrile in 0.2% TFA water, UV detection at 254 nm. The sugars were identified as D-glucose (t_r 9.02 min).

p-Hydroxybenzaldehyde (2): white powder; $^1\text{H-NMR}$ (CD_3OD , 500 MHz): δ 9.74 (1H, s, CHO), 7.77 (2H, d, J = 8.8 Hz, H-2, H-6), 6.90 (2H, d, J = 8.8 Hz, H-3, H-5); $^{13}\text{C-NMR}$ (CD_3OD , 125 MHz): δ 192.7 (CHO), 166.5 (C-4), 133.5 (C-2, C-6), 129.6 (C-1), 117.2 (C-3, C-5).

Indole-3-carboxaldehyde (3): white powder; $^1\text{H-NMR}$ (CD_3OD , 500 MHz): δ 9.90 (1H, s, CHO), 8.18 (1H, d, J = 8.0 Hz, H-7), 8.10 (2H, s, H-2), 7.50 (1H, d, J = 8.0 Hz, H-4), 7.30 (1H, m, H-5), 7.26 (1H, m, H-6); $^{13}\text{C-NMR}$ (CD_3OD , 125 MHz): δ 139.6 (C-2), 125.7 (C-3), 122.3 (C-4), 123.6 (C-5), 125.0 (C-6), 113.1 (C-7), 138.9 (C-8), 120.1 (C-9), 187.4 (C-10).

Cyclo(D-pro-D-val) (4): white powder; $[\alpha]_D^{24}$: +37.2 (c 0.1, MeOH); $^1\text{H-NMR}$ (CD_3OD , 500 MHz): δ 4.23 (1H, m, H-6), 4.05 (1H, m, H-9), 3.58 (1H, m, H-3a), 3.51 (1H, m, H-3b), 2.50 (1H, m, H-10), 2.33 (1H, m, H-5a), 2.04 (1H, m, H-4a), 1.96 (2H, m, H-4b, 5b), 1.12 (3H, d, J = 7.0 Hz, H-11), 0.96 (3H, d, J = 7.0 Hz, H-12). $^{13}\text{C-NMR}$ (CD_3OD , 125 MHz): δ 172.5 (C-1), 46.1 (C-3), 23.2 (C-4), 29.5 (C-5), 60.0 (C-6), 167.5 (C-7), 61.5 (C-9), 29.9 (C-10), 18.8 (C-11), 16.6 (C-12).

Uracil (5): white powder; $^1\text{H-NMR}$ (CD_3OD , 500 MHz): δ 10.91 (2H, s, NH), 7.50 (1H, d, J = 7.5 Hz, H-6), 5.73 (1H, d, J = 7.5 Hz, H-5); $^{13}\text{C-NMR}$ (CD_3OD , 125 MHz): δ 153.6 (C-2), 167.7 (C-4), 143.9 (C-5), 101.8 (C-6).

Antibacterial and antifungal activity was determined by agar well diffusion method

Strains of bacterial *Bacillus cereus* (ATCC14579) and the yeast *Candida albicans* (ATCC1023) obtained from American Type Culture Collection (ATCC, Manassas, VA), were used in this antimicrobial screening. The agar plate surface is inoculated by spreading a volume of the bacteria inoculum over the entire agar surface. Then, a hole with a diameter of 6 to 8 mm is punched aseptically with a sterile tip, and 50 μL of the *Streptomyces* sp. PDH23 fermentation broth was introduced into the well. Then, agar plates were incubated under 37°C overnight and the diameters (mm) of clear zone of inhibition were measured.

Table S1		
Antimicrobial activity		
Compounds	Inhibitory zone diameter (mm)	
	<i>Candida albicans</i>	<i>Bacillus cereus</i>
<i>Streptomyces</i> sp. PDH23	18	19
Chloramphenicol (30 μg)	-	18
Nystatin (10 μg)	14	-

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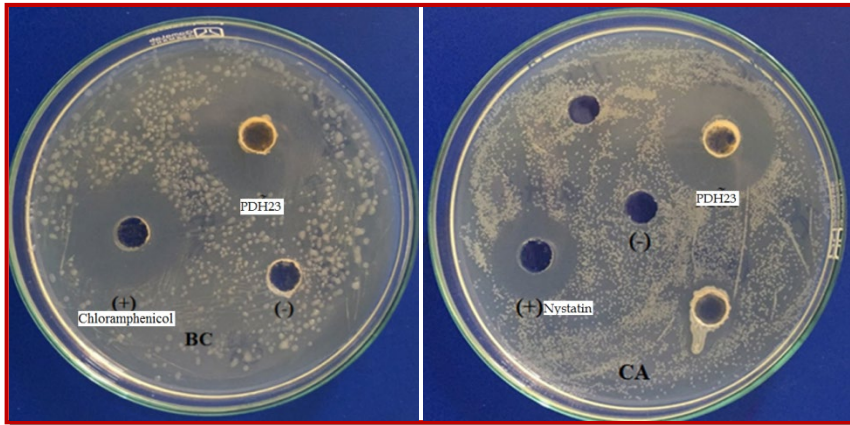


Figure S1: Antimicrobial activity of *Streptomyces* sp. PDH23 culture broth against *Bacillus cereus* (BC) and *Candida albicans* (CA)