

Supporting Information

A Cyclic Dipeptide from Marine Fungus *Penicillium chrysogenum* DXY-1 Exhibits Anti-Quorum Sensing Activity

Xiaodan Yu^{a,†}, Li Li^{a,†}, Shiwei Sun^b, Aiping Chang^a, Xiaoyun Dai^c, Hui Li^c, Yinglu Wang^{a,*}, Hu Zhu^{a,*}

^a *Engineering Research Center of Industrial Biocatalysis, Fujian Province University, Fujian Provincial Key Laboratory of Advanced Materials Oriented Chemical Engineering, Fujian Provincial Key Laboratory of Polymer Materials, Key Laboratory of OptoElectronic Science and Technology for Medicine of Ministry of Education, College of Chemistry and Materials Science, Fujian Normal University, 32 Shangsang Road, Fuzhou 350007, People's Republic of China*

^b *Department of Natural Medicine and Pharmacognosy, School of Pharmacy, Qingdao University, 308 Ningxia Road, Qingdao 266071, People's Republic of China*

^c *Centre for Bioengineering and Biotechnology, China University of Petroleum (East China), 66 Changjiang West Road, Qingdao 266580, People's Republic of China*

[†] *These authors contributed equally to this work and joint first authors.*

To whom correspondence should be addressed: College of Chemistry and Materials Science, Fujian Normal University, 32 Shangsang Road, Fuzhou 350007, P. R. China.

Tel.: +86-591-83465326; Fax: +86-591-83465326; E-mail address:

zhuhu@fjnu.edu.cn

NMR data of isolated cyclo(*L*-Tyr-*L*-Pro)

$^1\text{H-NMR}$ (400MHz, DMSO- d_6) δ_{H} : 9.17 (s, 1H, OH), 7.85 (s, 1H, NH), 7.05 (d, 2H, $J = 8.4$ Hz, Ar-H), 6.64 (d, 2H, $J = 8.4$ Hz, Ar-H), 4.24 (dd, app t, 1H, $J = 4.6$ Hz, H-9), 4.03 (dd, 1H, $J = 9.1, 7.4$ Hz, H-6), 3.43-3.36 (m, 1H, H-3), 3.28-3.22 (m, 1H, H-3), 3.17 (d, 1H, $J = 4.8$ Hz, H-10), 2.92 (d, 1H, $J = 4.4$ Hz, H-10) 2.04-1.96 (m, 1H, H-5), 1.73-1.70 (m, 2H, H-4), 1.45-1.35 (m, 1H, H-5); $^{13}\text{C-NMR}$ (100MHz, DMSO- d_6) δ_{C} : 168.89 (C=O, C-7), 165.09 (C=O, C-1), 155.88 (C-4'), 130.79 (C-2' and C-6'), 127.05 (C-1'), 114.76 (C-3' and C-5'), 58.38 (C-6), 56.00 (C-9), 44.54 (C-3), 34.70 (C-10), 27.82 (C-5), 21.85 (C-4).

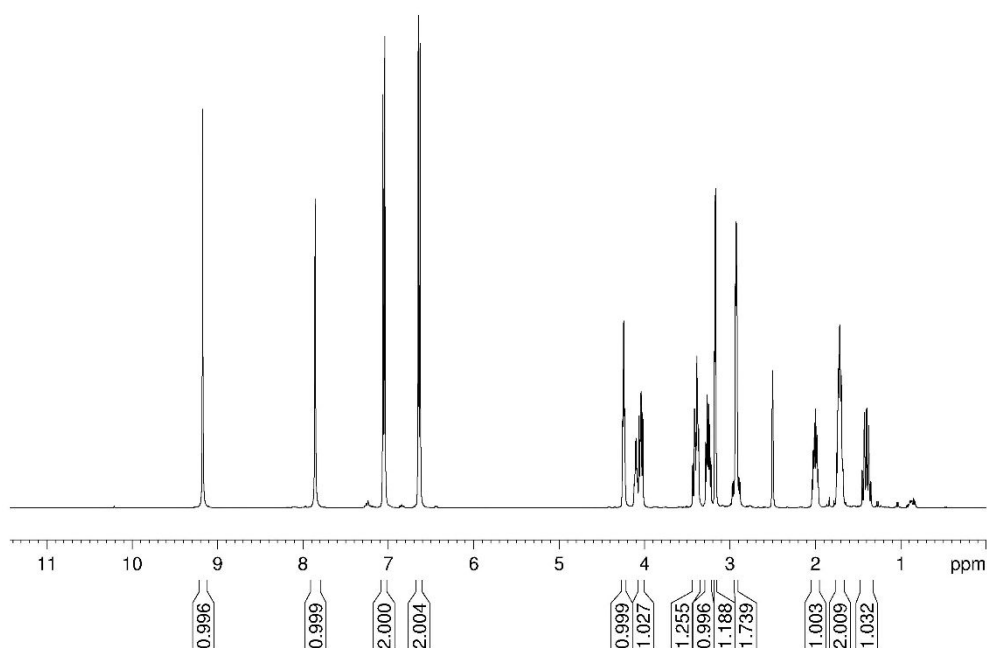


Figure S1 The $^1\text{H-NMR}$ spectrum of the obtained compound in d_6 -DMSO

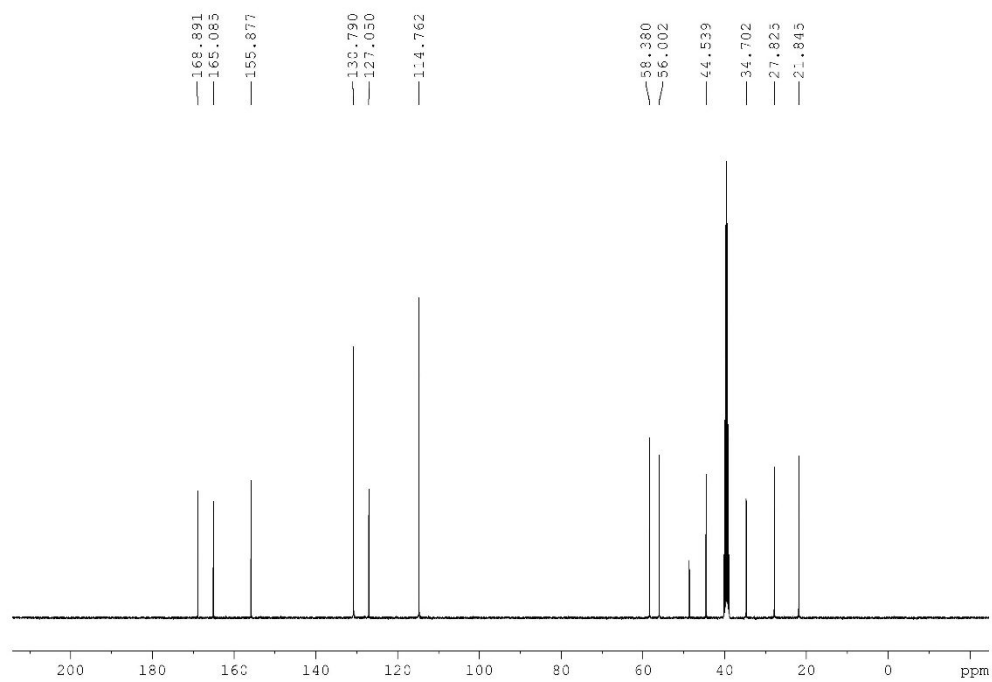


Figure S2 The ^{13}C -NMR spectrum of the obtained compound in d_6 -DMSO

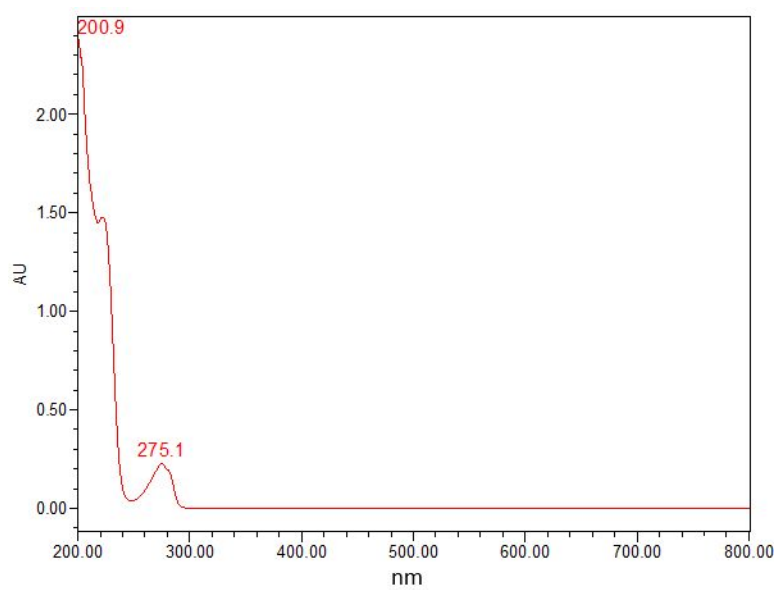


Figure S3 The UV-vis spectrum of the obtained compound

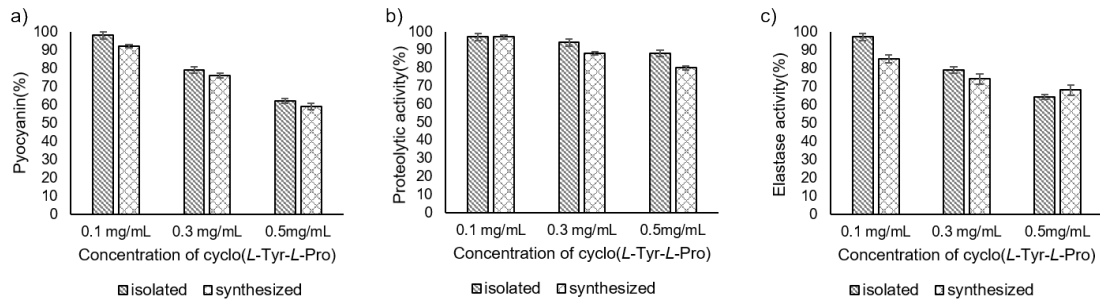


Figure S4 a) pyocyanin production, b) proteolytic activity and c) elastase activity of *P. aeruginosa* PA01 after treated with different concentrations of isolated and chemically synthesized cyclo(L-Tyr-L-Pro).

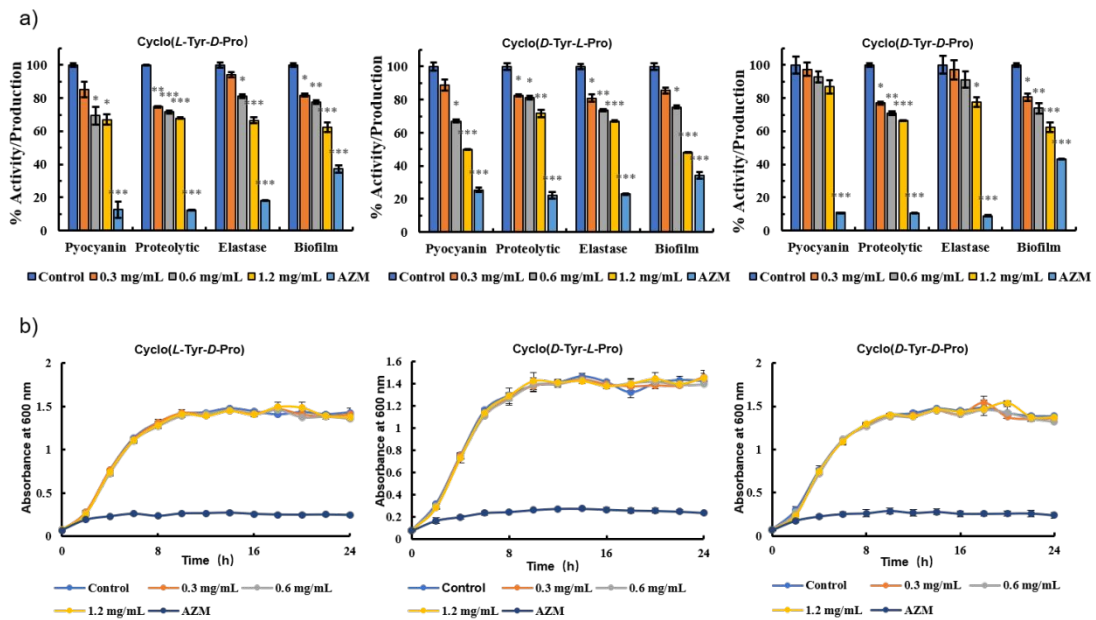


Figure S5 a) anti-QS activity of cyclo(Tyr-Pro) with different absolute configurations against *P. aeruginosa* PA01; b) growth curve of *P. aeruginosa* PA01 under treatment with cyclo(Tyr-Pro).