

SUPPLEMENTARY MATERIALS

Alkaloids and styryllactones from *Goniothalamus ridleyi* King and their α -glucosidase inhibitory activity

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Abstract: Gonioridleylactam (**1**), an undescribed compound, is a unique dimeric aristolactam isolated from the EtOAc extract of the twigs of *Goniothalamus ridleyi* King. The structure of gonioridleylactam (**1**) consists of two different aristolactams jointed together *via* two methylenedioxy bridges at C-3/C-3' and C-4/C-4' generating a ten-membered ring of [1,3,6,8]tetraoxecine. An undescribed natural product, gonioridleyindole (3-hydroxymethyl-1-methyl-1*H*-benz[*f*]indole-4,9-dione, **2**), together with eight known compounds (**3-10**) were also isolated from this plant. Their structures were extensively characterized by spectroscopic methods and comparisons made from the literature. Compounds **1-4**, **7**, and **9** were evaluated for their α -glucosidase inhibitory activity. Of these, 3,5-demethoxypiperolide (**7**) displayed the highest α -glucosidase inhibitory activity with an IC₅₀ value of 1.25 μ M.

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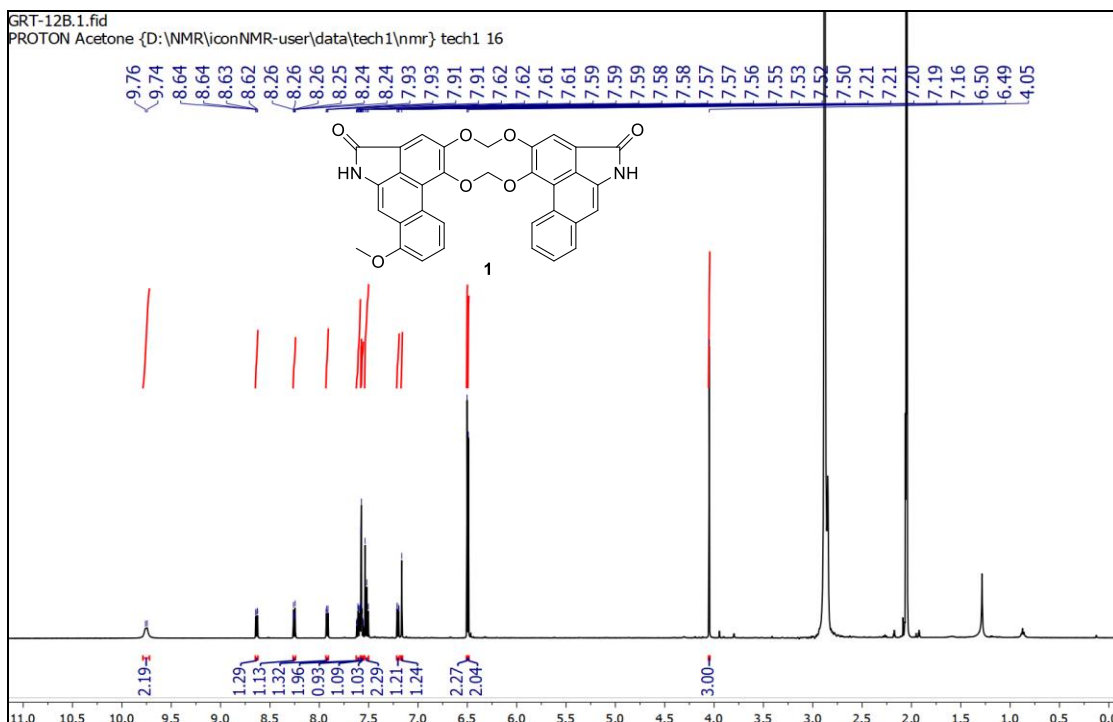


Figure S1 ^1H NMR (600 MHz, acetone- d_6) of gonioridleyilactam (**1**)

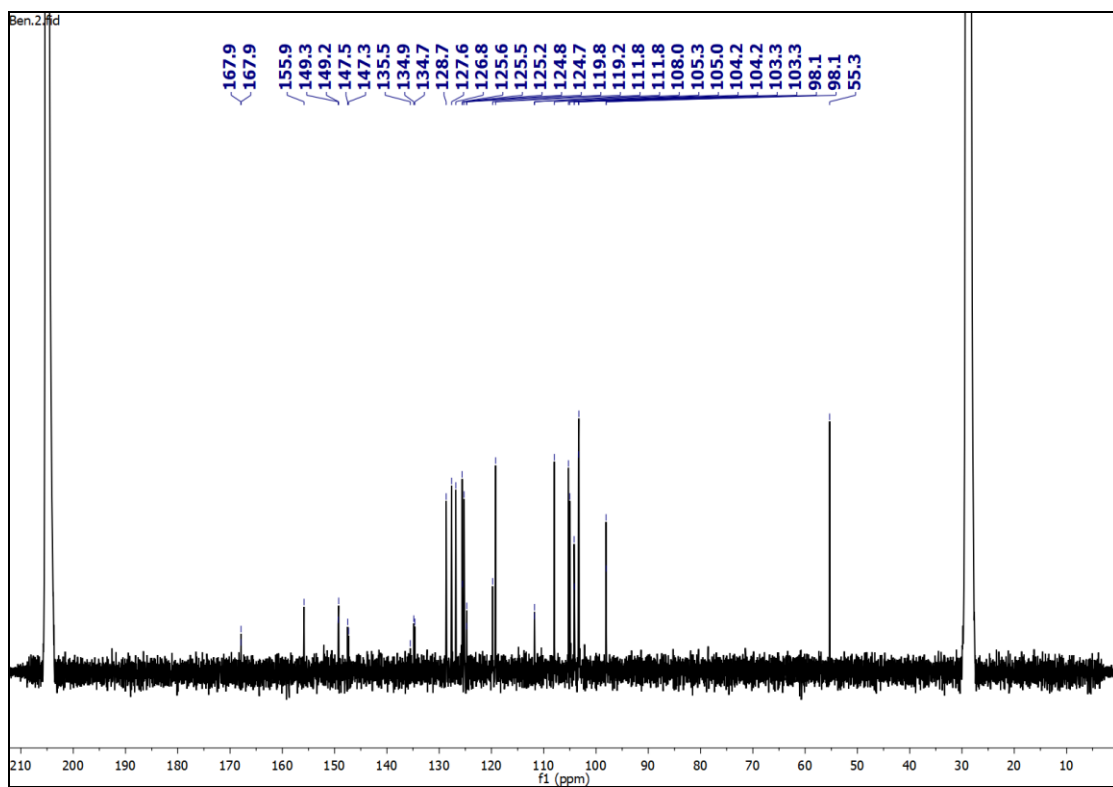


Figure S2 ^{13}C NMR (125 MHz, acetone- d_6) of gonioridleyilactam (**1**)

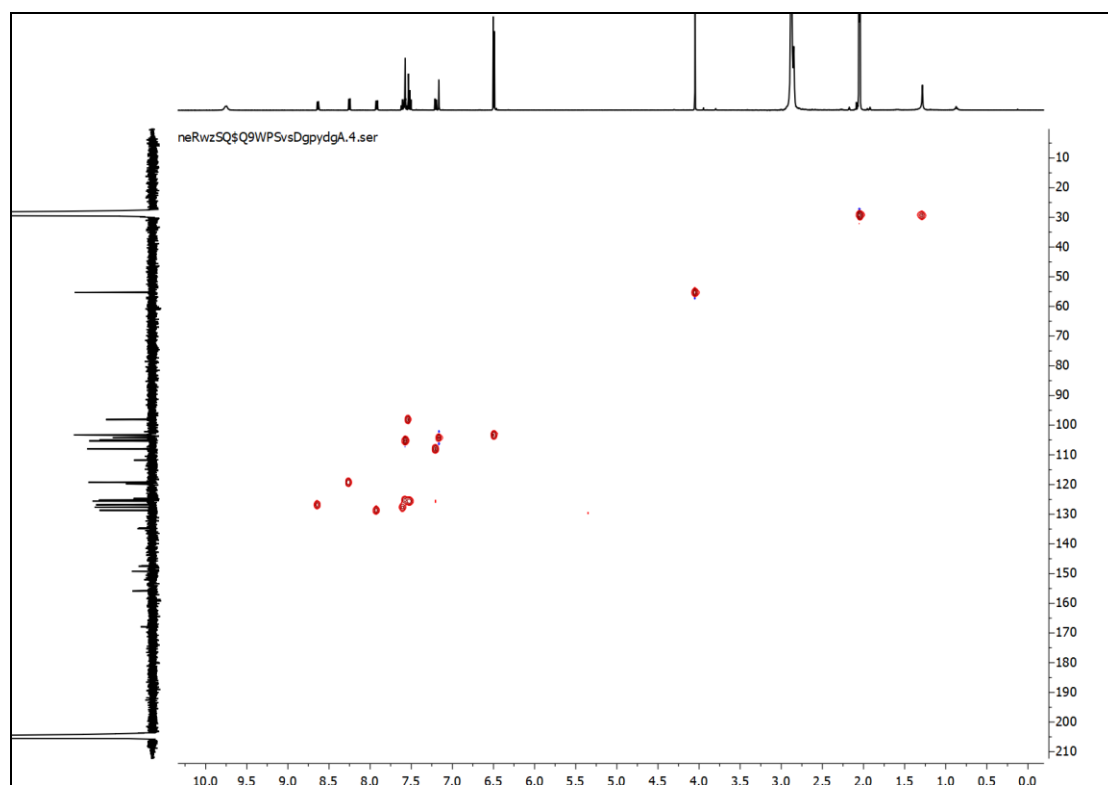


Figure S3 HSQC of gonioridleyilactam (1)

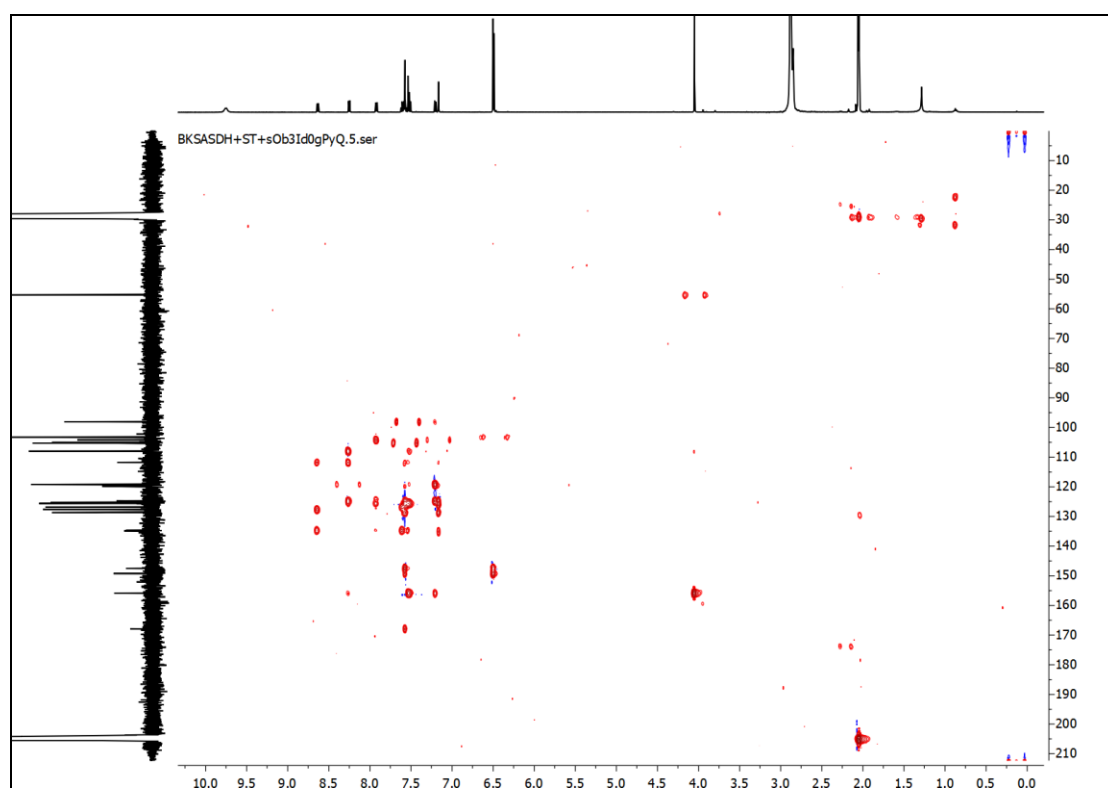


Figure S4 HMBC of gonioridleyilactam (1)

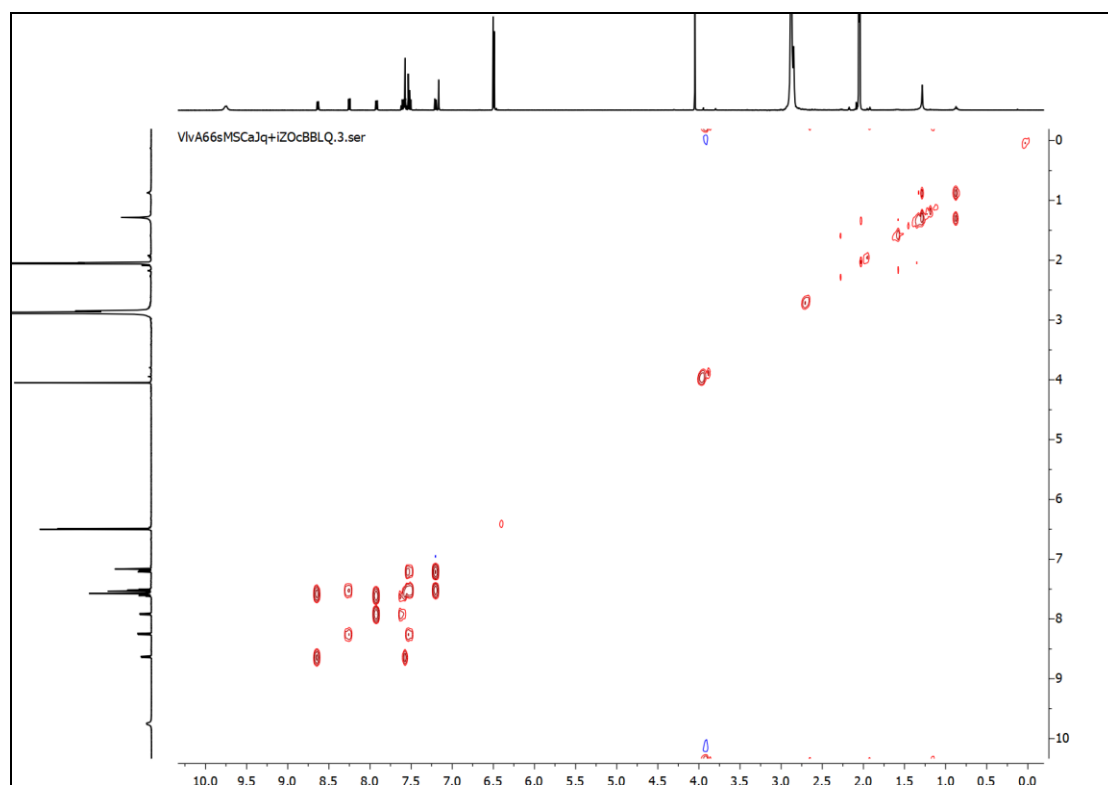


Figure S5 COSY of gonioridleylactam (**1**)

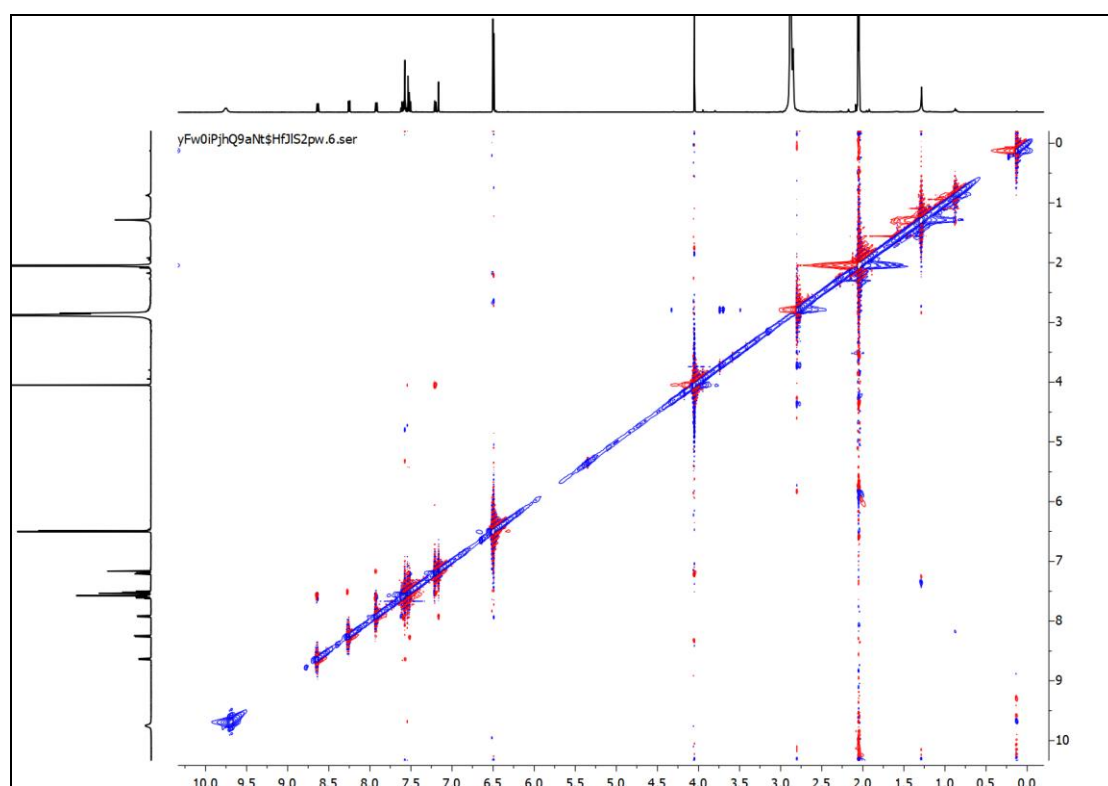


Figure S6 NOESY of gonioridleylactam (**1**)

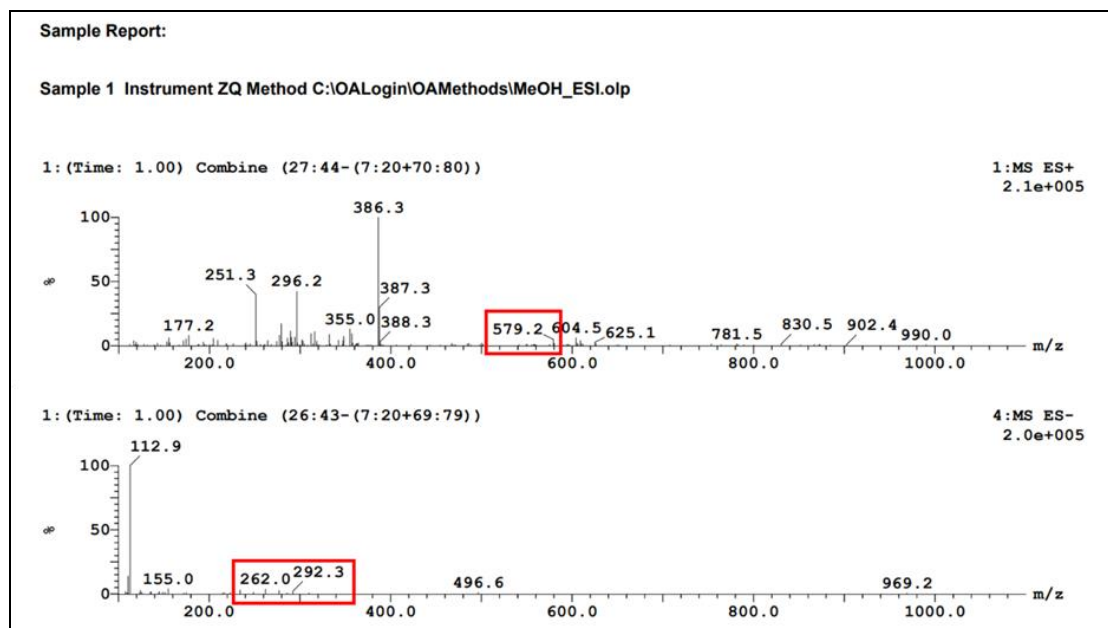


Figure S7 LRESIMS (Low-resolution electrospray ionisation mass spectrometry) spectrum of gonioridleyilactam (**1**)

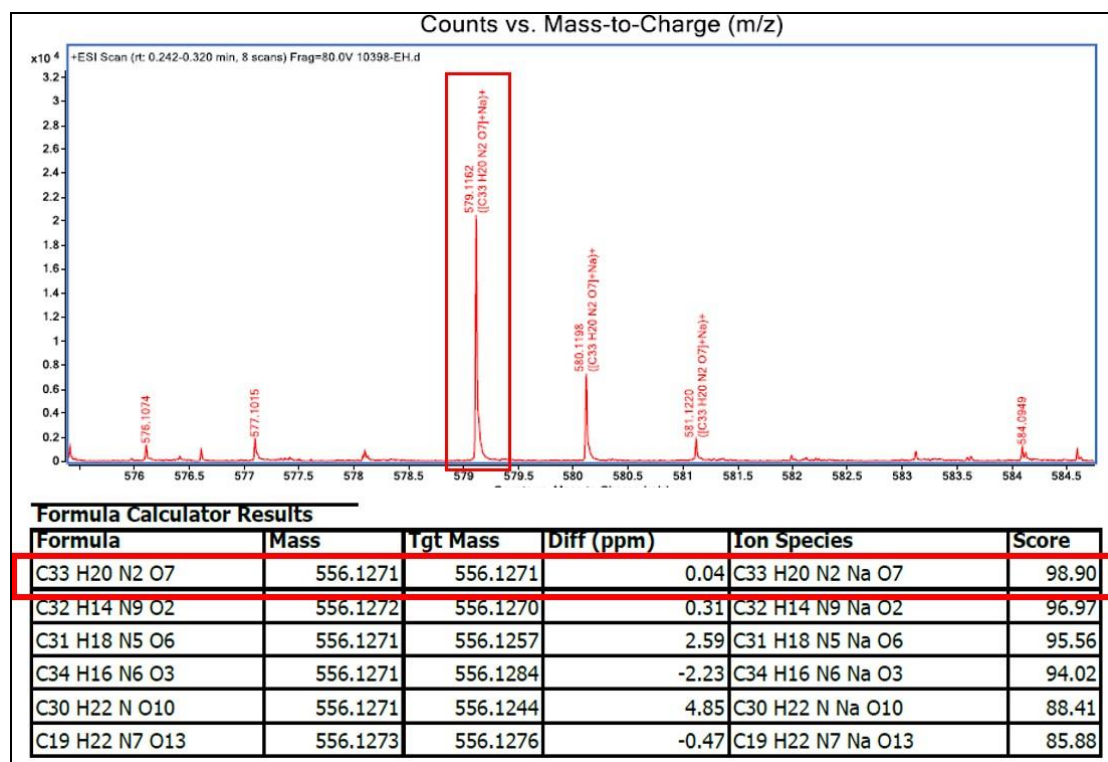


Figure S8 HRESIMS spectrum of gonioridleyilactam (**1**)

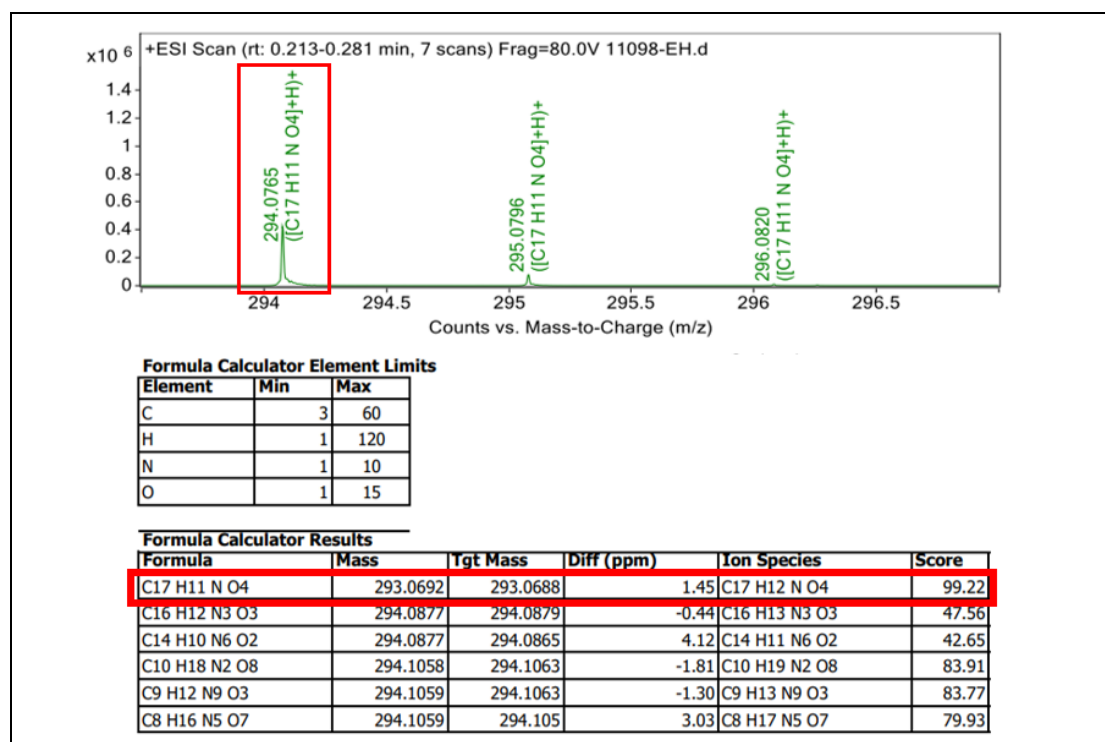


Figure S9 HRESIMS spectrum of aristolactam unit A of **1**

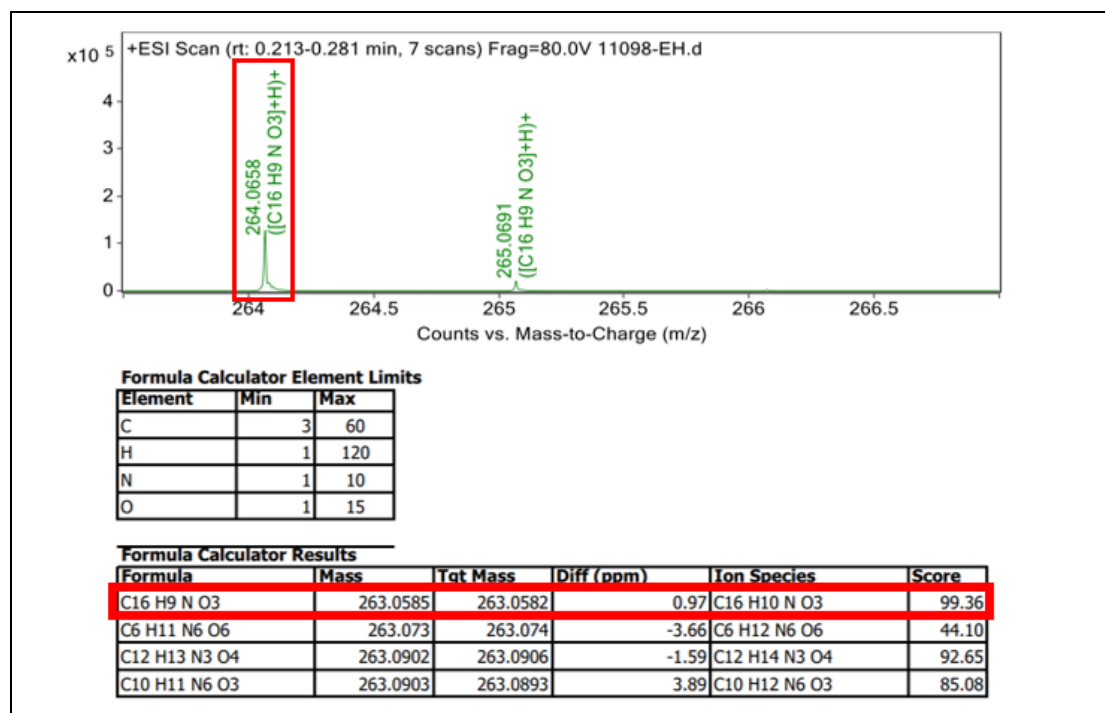


Figure S10 HRESIMS spectrum of aristolactam unit B of **1**

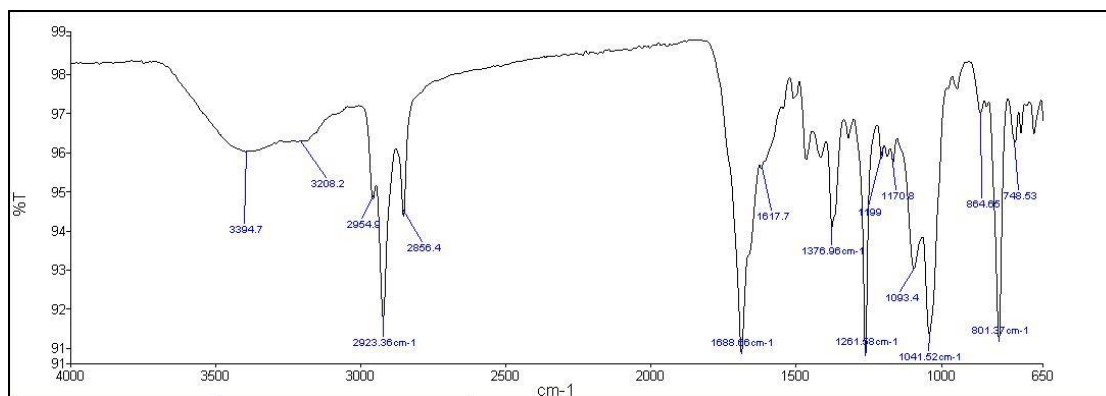


Figure S11 IR spectrum of gonioridleylactam (**1**)

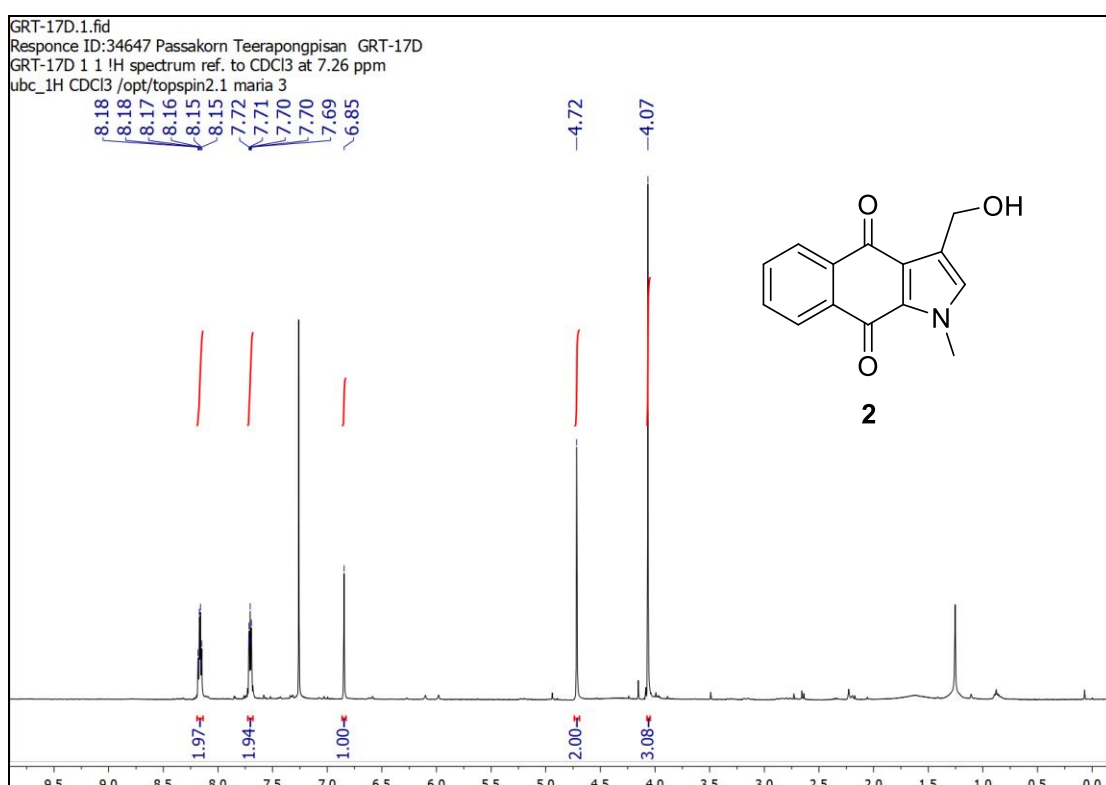


Figure S12 ^1H NMR (400 MHz, CDCl_3) of
3-hydroxymethyl-1-methyl-1*H*-benz[*f*]indole-4,9-dione (**2**)

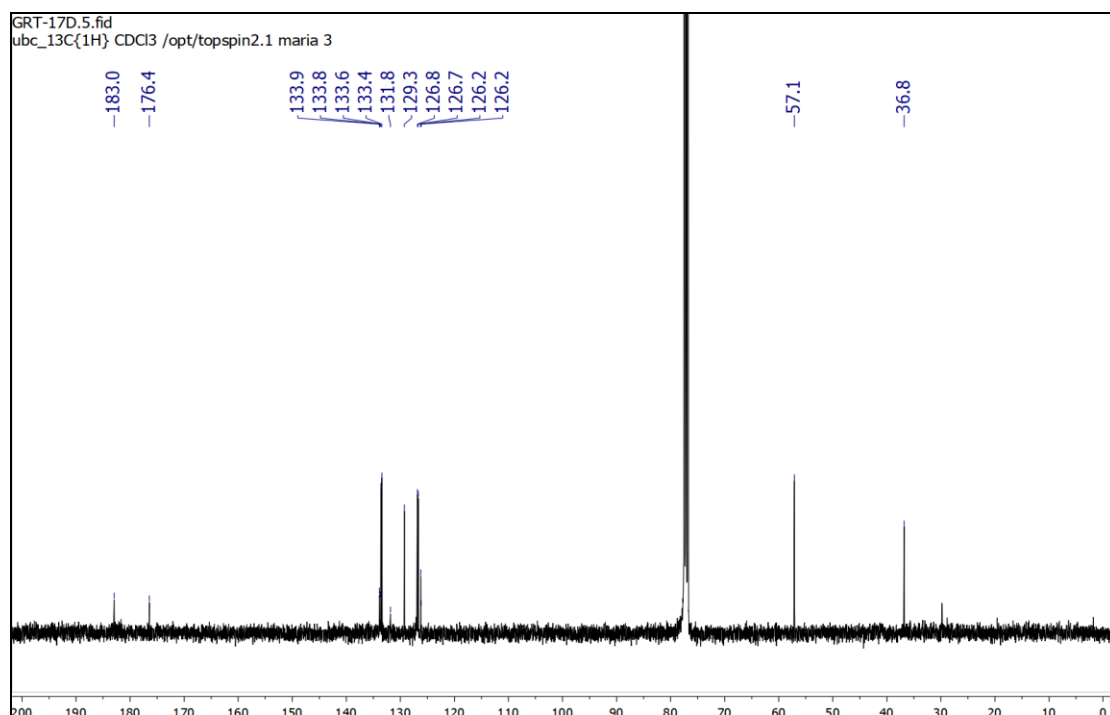


Figure S13 ^{13}C NMR (100 MHz, CDCl_3) of
3-hydroxymethyl-1-methyl-1*H*-benz[*f*]indole-4,9-dione (**2**)

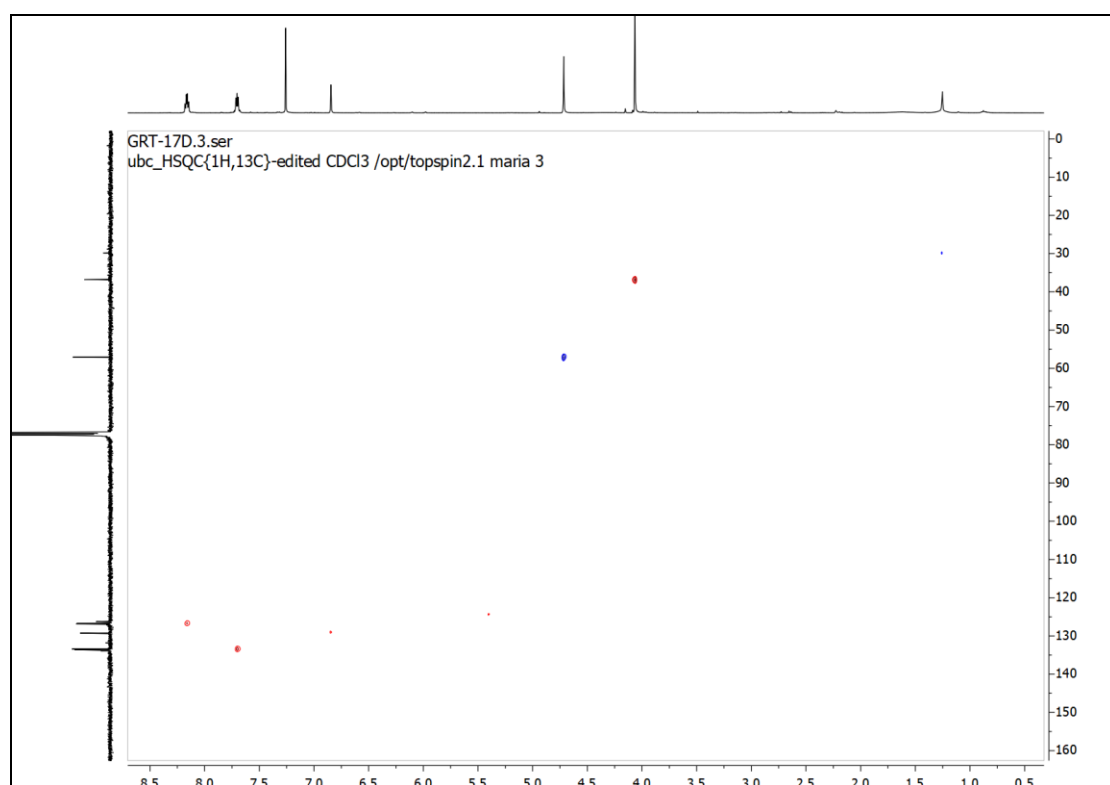


Figure S14 HSQC of 3-hydroxymethyl-1-methyl-1*H*-benz[*f*]indole-4,9-dione (**2**)

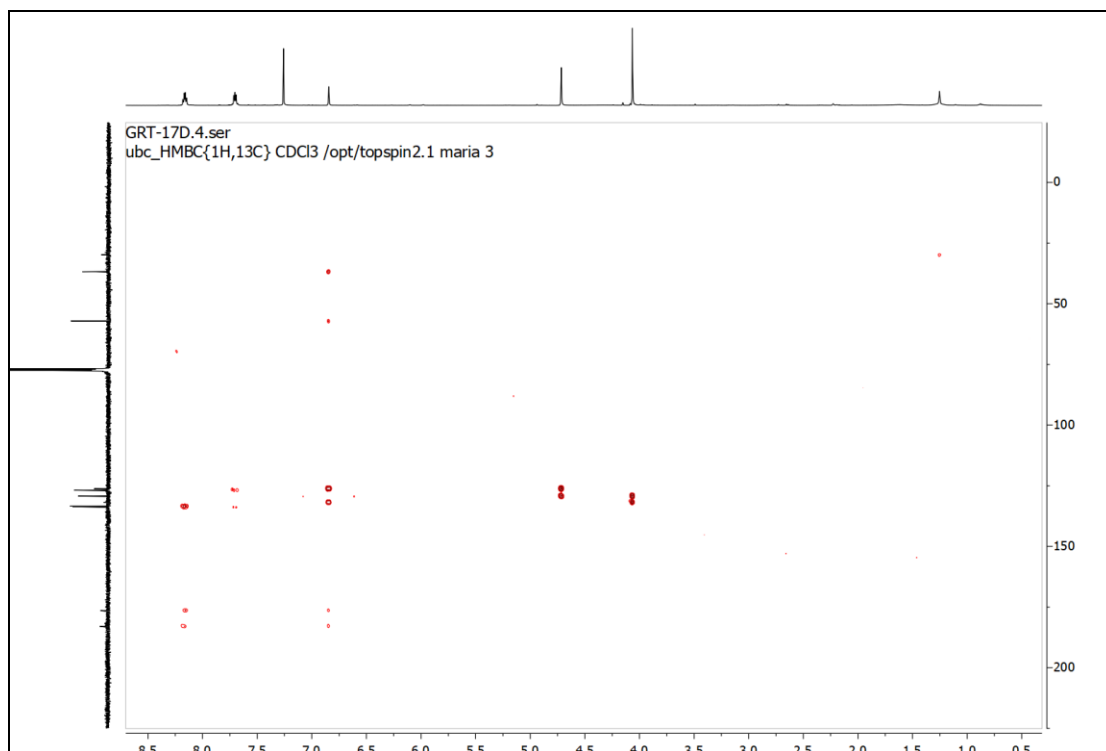


Figure S15 HMBC of 3-hydroxymethyl-1-methyl-1*H*-benz[*f*]indole-4,9-dione (**2**)

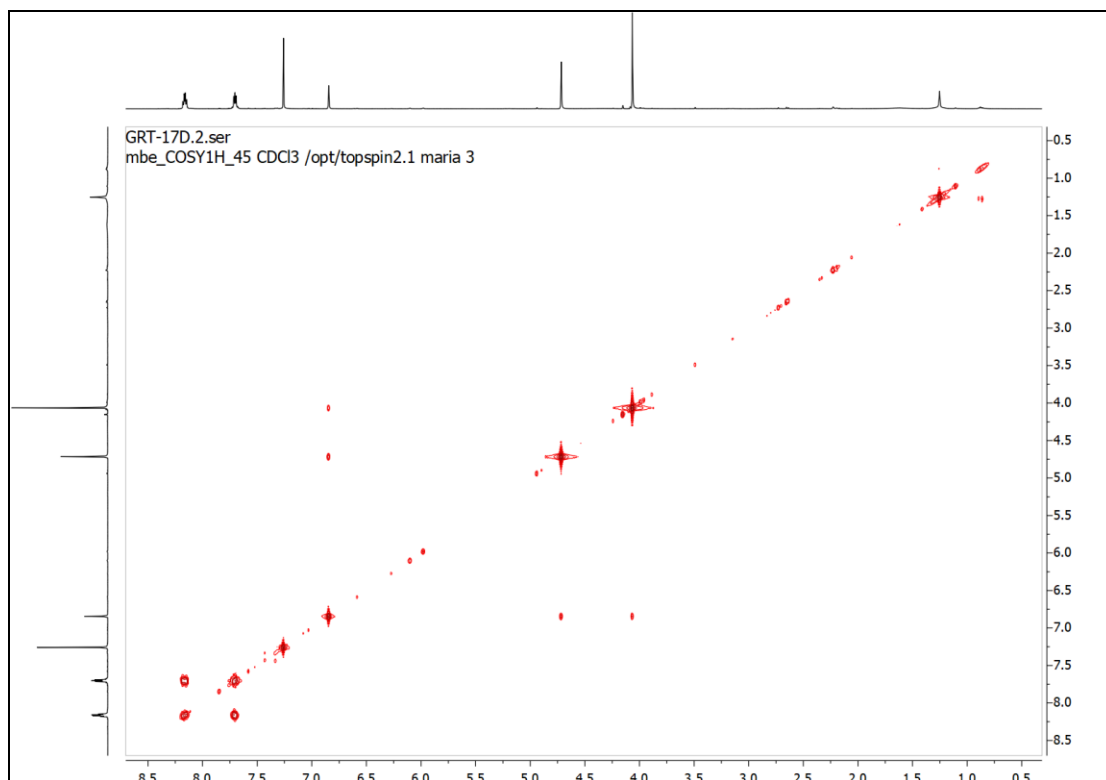


Figure S16 COSY of 3-hydroxymethyl-1-methyl-1*H*-benz[*f*]indole-4,9-dione (**2**)

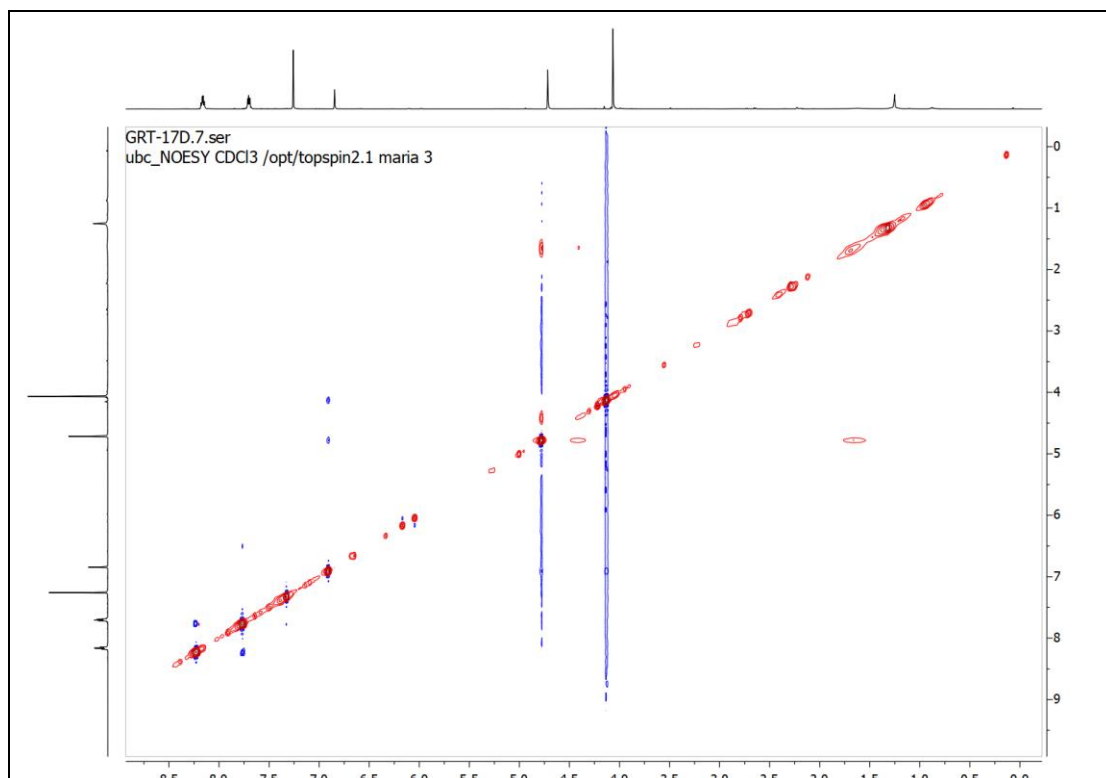


Figure S17 NOESY of 3-hydroxymethyl-1-methyl-1*H*-benz[*f*]indole-4,9-dione (**2**)

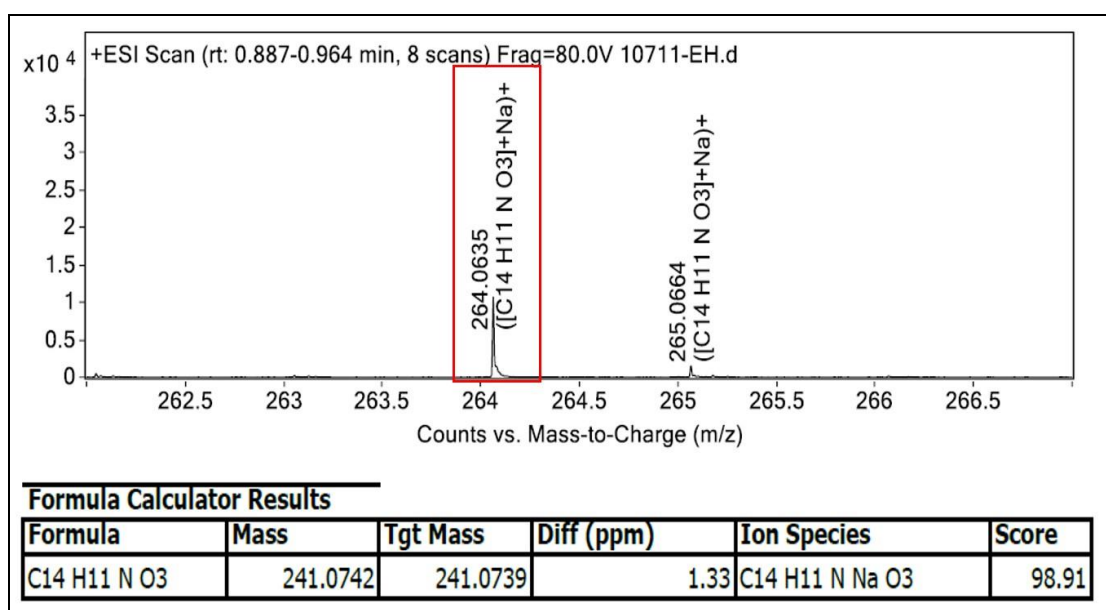


Figure S18 HRESIMS spectrum of 3-hydroxymethyl-1-methyl-1*H*-benz[*f*]indole-4,9-dione (**2**)

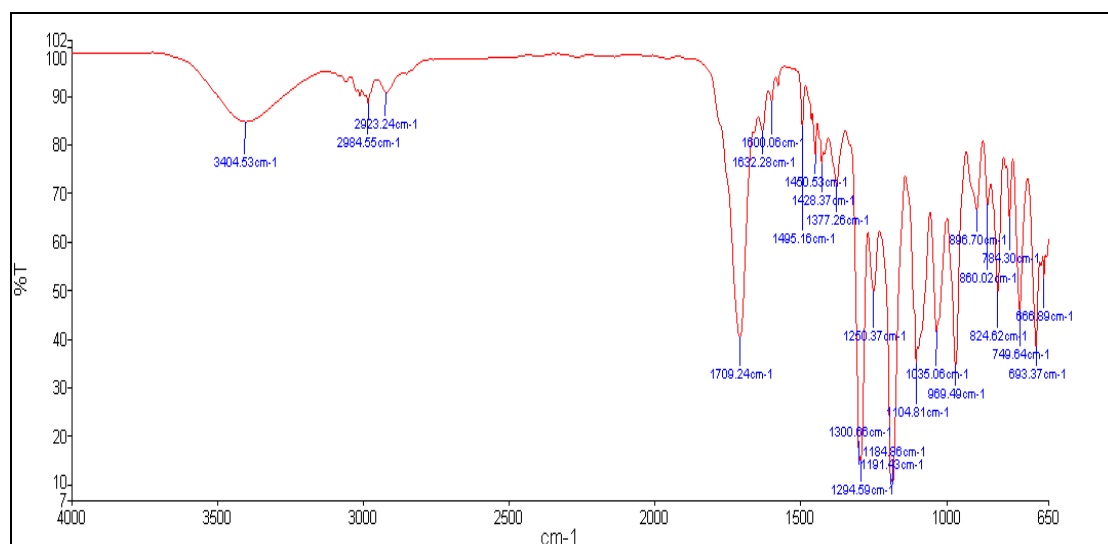


Figure S19 IR spectrum of 3-hydroxymethyl-1-methyl-1*H*-benz[*f*]indole-4,9-dione (**2**)

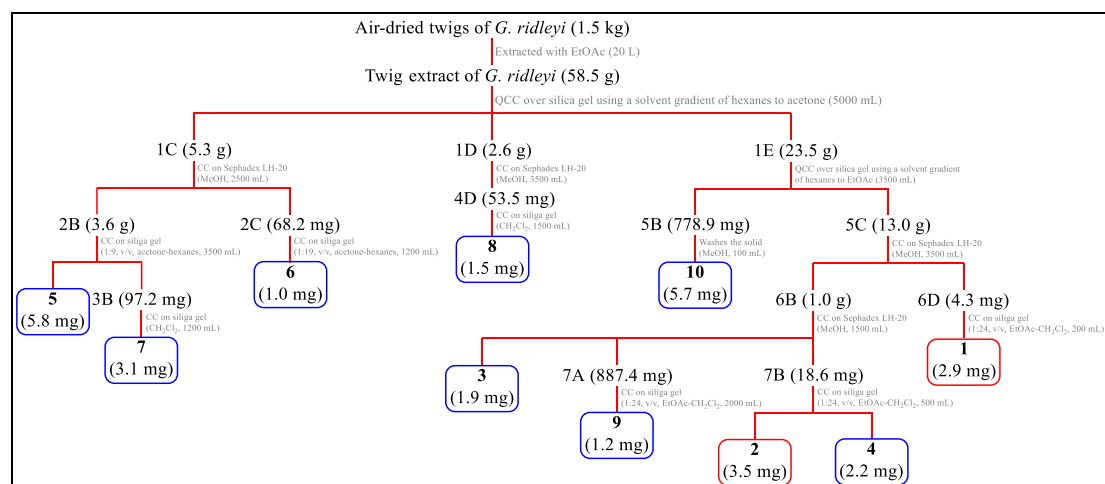


Figure S20 The isolation and purification of isolated compounds **1-10** from the twig extract of *G. ridleyi*