Supporting Information

A New Benzopyranyl Cadenane Sesquiterpene and Other Antiplasmodial and Cytotoxic Metabolites from *Cleistochlamys kirkii*

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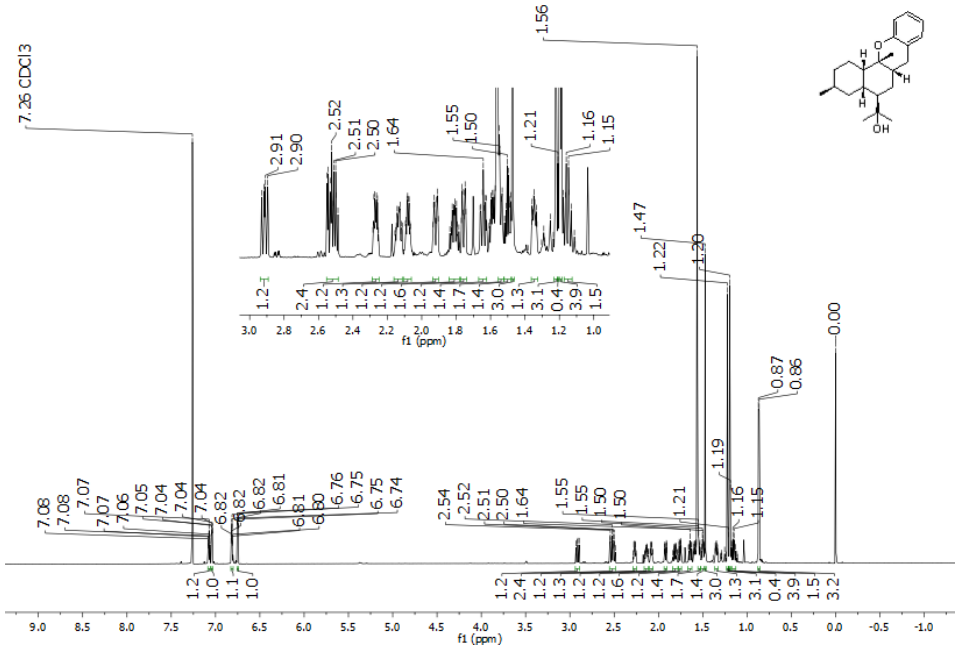


Figure S1. The ^{1}H NMR Spectrum of Cleistonol (**1**) Measured at 800 MHz and Acquired in $CDCl_3$.

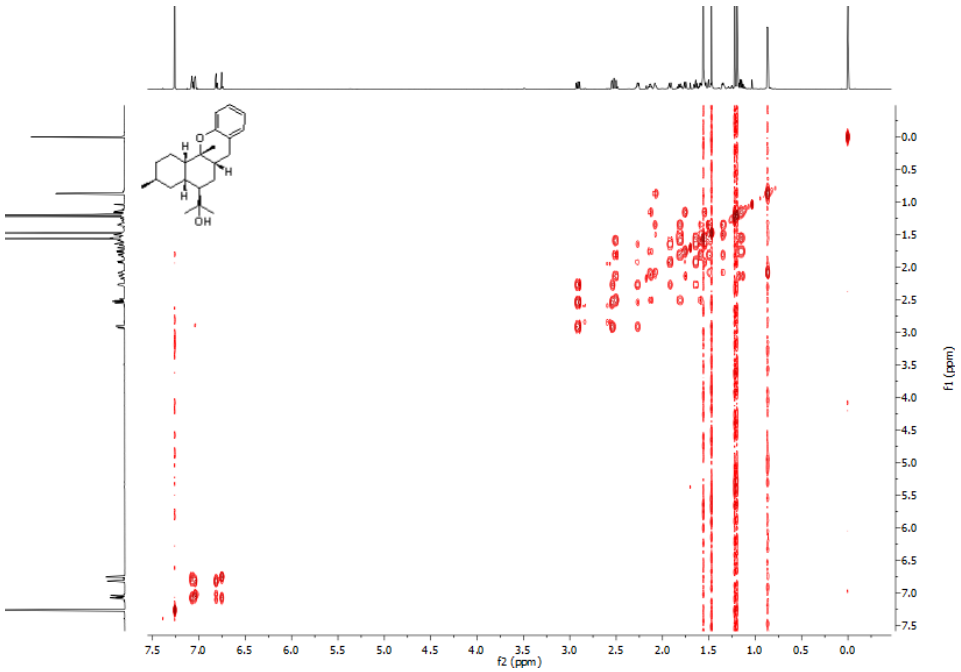


Figure S2. The H/H COSY Spectrum of Cleistonol (**1**) Measured at 800 MHz and Acquired in $CDCl_3$.

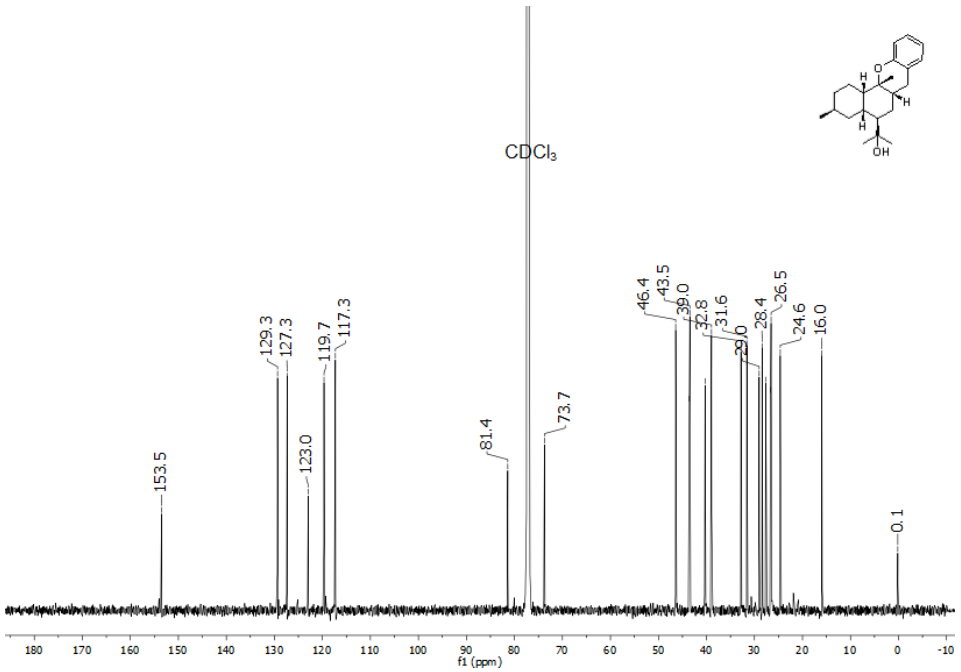


Figure S3. The ^{13}C NMR Spectrum of Cleistonol (**1**) Measured at 800 MHz and Acquired in $CDCl_3$.

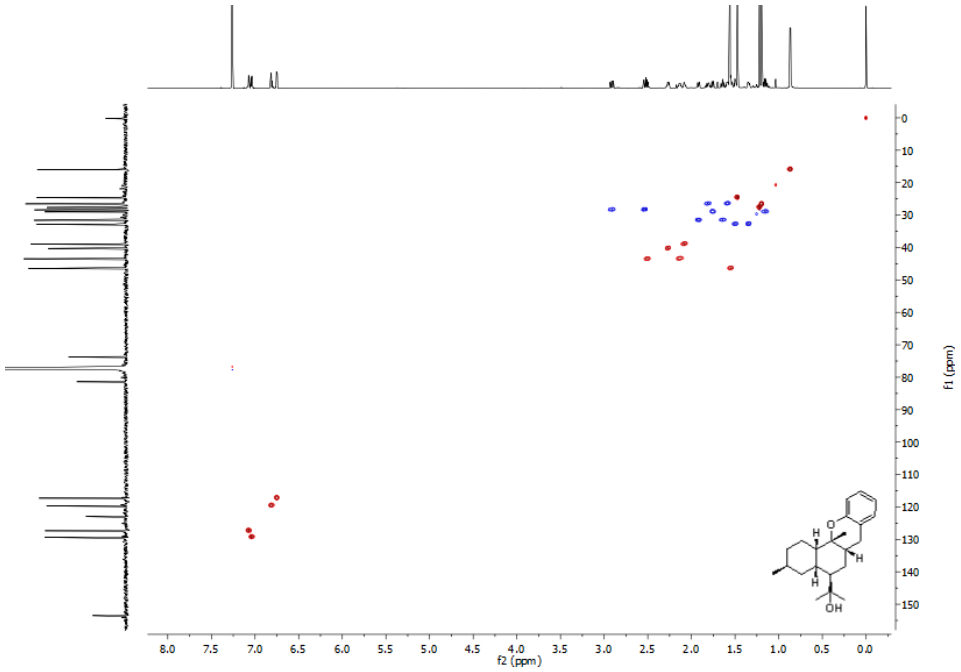


Figure S4. The HSQC Spectrum of Cleistonol (**1**) Measured at 800 MHz and Acquired in $CDCl_3$.

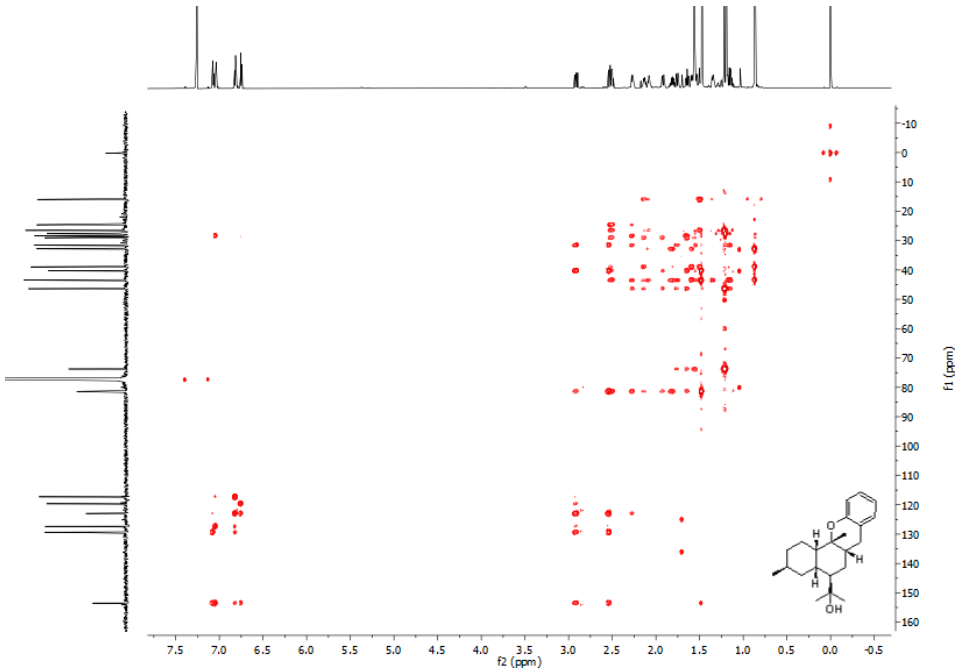


Figure S5. The HMBC Spectrum of Cleistonol (**1**) Measured at 800 MHz and Acquired in $CDCl_3$.

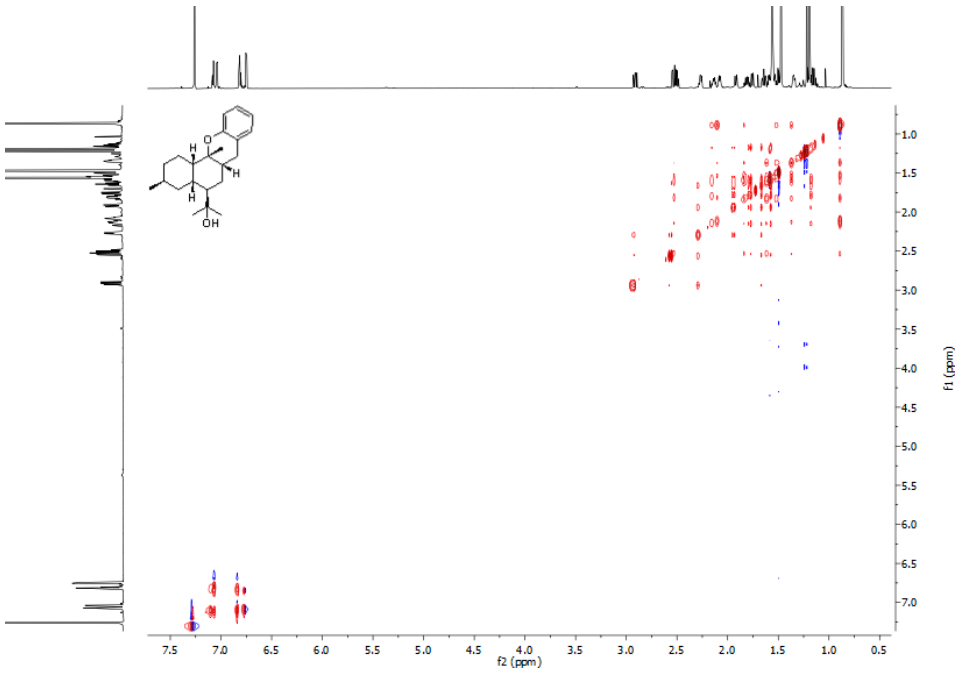


Figure S6. The TOCSY Spectrum of Cleistonol (**1**) Measured at 800 MHz and Acquired in $CDCl_3$.

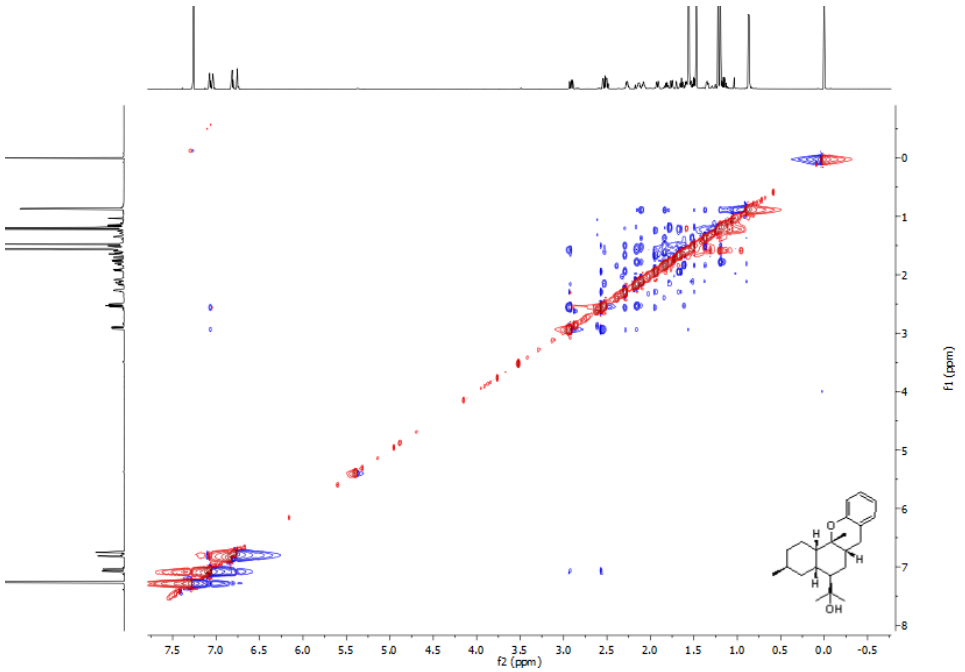


Figure S7. The NOESY Spectrum of Cleistonol (**1**) Measured at 800 MHz and Acquired in $CDCl_3$.

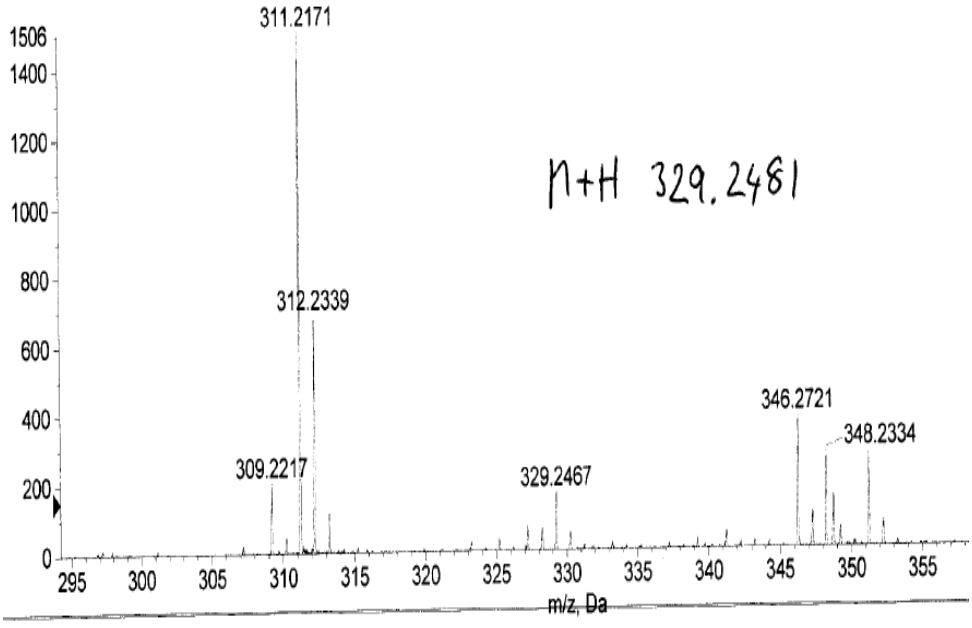
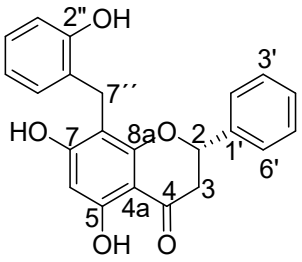
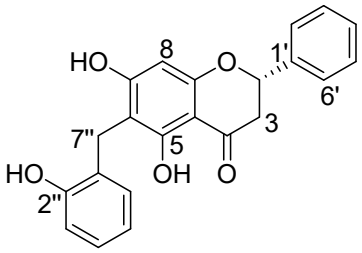


Figure S8. The HRESIMS of Cleistonol (**1**).

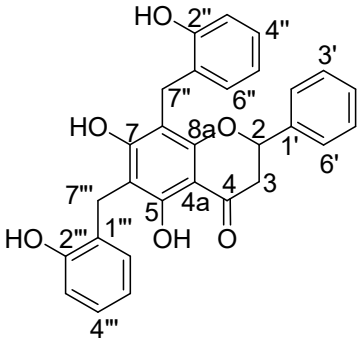
2. Spectroscopic Data of Known Compounds 2-13.



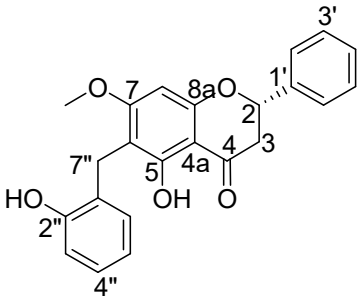
*Chamanetin (**2**)*: [1, 2] Yellow crystals. mp 200 - 204 °C; $[\alpha]_D^{20}$ – 16.1 (c, 5.3, MeOH), UV (MeOH)λ_{max} 290, 325 nm; CD (MeOH, λnm ($\Delta\varepsilon$; $M^{-1}cm^{-1}$): (- 7.67)$_{290}$; (+ 3.47)$_{216}$; IR (KBr) ν_{max} 3056, 1423, 1265, 895, 739 cm^{-1}; LC-MS *m*/*z* 363.5 $[M+H]^+$, 269.6, 257.5, 165.4, 149.6, 102.2, 74.1, 60.2; ^{1}H-NMR ($CDCl_3$, 25 ^{o}C) δ (800 MHz, ppm): 5.52 (1H, *dd*, *J* = 12.9, 3.1 Hz, H-2), 3.10 (1H, *dd*, *J* = 17.1, 12.9 Hz, H-3α), 2.81 (1H, *dd*, *J* = 17.1, 3.1 Hz, H-3β), 12.08 (1H, *s*, 5-OH), 6.03 (1H, *s*, H-6), 3.78 (2H, *s*, H-11), 7.39 - 7.50 (2H, *m*, H-2′/6′), 7.39 - 7.50 (2H, *m*, H-3′/5′), 7.50 (1H, *m*, H-4′), 6.79 (1H, *dd*, *J* = 8.0, 0.9 Hz, H-3″), 7.02, (1H, *m*, H-4″), 6.74 (1H, *td*, *J* = 7.5, 1.0 Hz, H-5″), 7.04 (1H, *dd*, *J* = 7.5, 1.6 Hz, H-6″); ^{13}C-NMR ($CDCl_3$, 25 ^{o}C) δ (200 MHz, ppm): 80.1 (C-2), 43.4 (C-3), 197.6 (C-4), 103.6 (C-4a), 163.3 (C-5), 97.0 (C-6), 164.7 (C-7), 107.3 (C-8), 161.3 (C-8a), 139.9 (C-1′), 127.3 (C-2′/6′), 129.7 (C-3′/5′), 129.6 (C-4′), 154.7 (C-2″), 115.9 (C-3″), 128.2 (C-4″), 121.1 (C-5″), 130.9 (C-6″), 22.9 (C-7″).



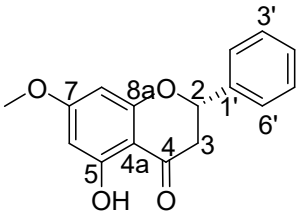
*Isochamanetin (**3**)*: [1, 2] Yellow powder. mp 212 - 214 °C; $[\alpha]_D^{20}$ - 4.3 (c, 0.7, MeOH), UV (MeOH)$_{\lambda max}$ 290, 335 nm; CD (MeOH, λnm ($\Delta\varepsilon$; $M^{-1}cm^{-1}$): (+9.23)$_{331}$; (- 40.16)$_{288}$; (+ 45.07)$_{222}$; IR (KBr) ν_{max} 3418, 1638, 1265, 740 cm^{-1} ; LC-MS *m*/*z* 363.5 $[M+H]^+$, 271.6, 269.4, 259.6, 257.5, 241.3, 175.5, 165.3, 149.5, 147.0, 123.2, 107.4, 98.9, 81.1, 60.1; ^{1}H-NMR ($CDCl_3$, 25 ^{o}C) δ (800 MHz, ppm): 5.45 (1H, *dd*, *J* = 12.9, 3.0 Hz, H-2), 3.08 (1H, *dd*, *J* = 17.0, 13.0 Hz, H-3α), 2.76 (1H, *dd*, *J* = 17.0, 3.0 Hz, H-3β), 6.01 (1H, *s*, H-8), 3.83, 3.81 (2H, *q*, *J* = 3.9 Hz, H-7''), 7.50 (2H, *d*, *J* = 7.3 Hz, H-2′/6′), 7.41 (2H, *t*, *J* = 7.7 Hz, H-3′/5′), 7.36 (1H, *m*, H-4′), 6.75 (1H, *dd*, *J* = 8.0, 1.0 Hz, H-3″), 6.98 (1H, *dt*, *J* = 7.8, 1.6 Hz, H-4″), 6.69 (1H, *dt*, *J* = 7.6, 1.2 Hz, H-5″), 7.05 (1H, *dd*, *J* = 7.6, 1.2 Hz, H-6′); ^{13}C-NMR ($CDCl_3$, 25 ^{o}C) δ (200 MHz, ppm): 80.4 (C-2), 44.3 (C-3), 197.2 (C-4), 103.1 (C-4a), 162.8 (C-5), 109.0 (C-6), 162.8 (C-7), 96.3 (C-8), 155.7 (C-8a), 140.6 (C-1′), 127.3 (C-2′/6′), 129.7 (C-3′/5′), 129.6 (C-4′), 128.4 (C-1″), 155.7 (C-2″), 116.0 (C-3″), 127.8 (C-4″), 120.7 (C-5″), 130.8 (C-6″), 22.7 (C-7'').



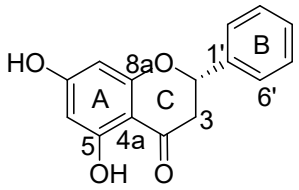
Dichamanetin (***4***): [1, 2] Yellow gum. [$[\alpha]_D^{20}$ – 12.8 (c, 9.2, MeOH), UV (MeOH)$_{\lambda max}$ 335, 295 nm; CD (MeOH, λnm ($\Delta\varepsilon$; $M^{-1}cm^{-1}$): (- 5.01)$_{380}$; (- 3.35)$_{253}$; (+ 1.11)$_{223}$; IR (KBr) ν_{max} 3054, 1630, 1420, 1265, 896, 739 cm^{-1}; LC-MS *m*/*z* 469.4 $[M+H]^+$, 429.1, 377.5, 375.5, 365.6, 363.5, 296.9, 281.5, 271.6, 269.6, 253.3, 213.3, 177.3, 149.5, 114.3; ^{1}H-NMR ($CDCl_3$, 25 ^{o}C) δ (800 MHz, ppm): 5.54 (1H, *dd*, *J* = 12.8, 3.0 Hz, H-2), 3.16 (1H, *dd*, *J* = 17.2, 12.8 Hz, H-3α), 2.86 (1H, *dd*, *J* = 17.2, 3.0 Hz, H-3β), 3.87 (2H, *d*, *J* = 6.9 Hz, H-7′′), 3.84 (2H, *s*, H-7′′′), 7.53 (2H, *d*, *J* = 7.3 Hz, H-2′/6′), 7.47 (2H, *t*, *J* = 7.5 Hz, H-3′/5′), 7.43 (1H, *m*, H-4′), 6.85 (1H, *dd*, *J* = 8.1, 0.9 Hz, H-3′′), 7.08 (1H, *m*, H-4′′), 6.82 (1H, *m*, H-5′′), 7.26 (1H, *dd*, *J* = 7.6, 1.3 Hz, H-6′′), 6.83 (1H, *m*, H-3′′′), 7.05 (1H, *m*, H-4′′′), 6.77 (1H, *m*, H-5′′′), 7.09 (1H, *m*, H-6′′′), 12.71 (1H, *s*, 5-OH), 8.16 (1H, *brs*, 7-OH), 8.16 (1H, *brs*, 2′′-OH), 8.16 (1H, *brs*, 2′′′-OH); ^{13}C-NMR ($CDCl_3$, 25 ^{o}C) δ (200 MHz, ppm): 79.9 (C-2), 43.0 (C-3), 197.6 (C-4), 103.2 (C-4a), 160.7 (C-5), 108.1 (C-6), 161.9 (C-7), 107.3 (C-8), 159.2 (C-8a), 139.5 (C-1′), 127.0 (C-2′/6′), 129.3 (C-4′), 127.2 (C-1′′), 154.0 (C-2′′), 115.7 (C-3′′), 128.0 (C-4′′), 121.1 (C-5′′), 131.1 (C-6′′), 22.3 (C-7"), 127.1 (C-1′′′), 153.8 (C-2′′′), 115.5 (C-3′′′), 128.0 (C-4′′′), 121.1 (C-5′′′), 130.9 (C-6′′′), 22.9 (C-7"').



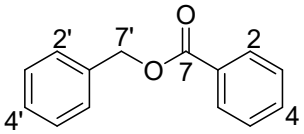
7-Methoxyisochamanetin (**5**): [3] White crystals. $[\alpha]_D^{20}$ – 5.6 (c, 2.1, MeOH), UV (MeOH)$_{\lambda max}$ 285, 330 nm; CD (MeOH, λnm ($\Delta\varepsilon$; $M^{-1}cm^{-1}$): (+18.25)$_{334}$; (- 3.91)$_{302}$; (+ 2.49)$_{279}$; (- 8.41)$_{265;}$ IR (KBr) ν_{max} 3424, 1638, 1265, 739 cm^{-1}; LC-MS *m*/*z* 377.5 $[M+H]^+$, 318.3, 283.7, 271.7, 241.5, 205.2, 179.1, 167.5, 149.5, 125.2, 102.1; ^{1}H-NMR ($CDCl_3$, 25 ^{o}C) δ (800 MHz, ppm): 5.40 (1H, *dd*, *J* = 13.1, 3.1 Hz, H-2), 3.09 (1H, *dd*, *J* = 17.3, 13.1 Hz, H-3α), 2.84 (1H, *dd*, *J* = 17.3, 3.1 Hz, H-3β), 12.82 (1H, *s*, 5-OH), 6.13 (1H, *s*, H-8), 3.85 (2H, *s*, H-7′′), 7.43-7.44 (2H, *m*, H-2′/6′), 7.43-7.44 (2H, *m*, H-3′/5′), 7.43-7.44 (1H, *m*, H-4′), 6.86 (1H, *dd*, *J* = 8.1, 1.0 Hz, H-3′′), 7.10 (1H, *td*, *J* = 8.0, 1.7 Hz, H-4′′), 6.82 (1H, *td*, *J* = 7.5, 1.1 Hz, H-5′′), 3.92 (3H, *s*, 7-OCH_3); ^{13}C-NMR ($CDCl_3$, 25 ^{o}C) δ (200 MHz, ppm): 79.7 (C-2), 43.3 (C-3), 196.3 (C-4), 103.0 (C-4a), 159.0 (C-5), 109.1 (C-6), 165.4 (C-7), 92.1 (C-8), 162.0 (C-8a), 138.2 (C-1′), 126.3 (C-2′/6′), 129.1 (C-3′/5′), 129.2 (C-4′), 125.9 (C-1′′), 154.7 (C-2′′), 116.6 (C-3′′), 128.0 (C-4′′), 120.1 (C-5′′), 131.8 (C-6′′), 22.8 (C-7"), 56.3 (-OCH_3).



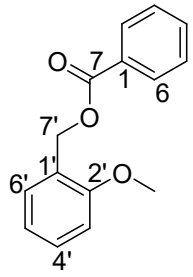
*5-Hydroxy-7-methoxyflavanone (Pinostrobin, **6**)*: [4] Yellow powder. [$[\alpha]_D^{20}$ - 37.5 (c, 1.3, MeOH), UV (MeOH)$_{\lambda max}$ 275nm; CD (MeOH, λnm ($\Delta\varepsilon$; $M^{-1}cm^{-1}$): (+13.45)$_{356}$; (- 2.33)$_{335}$; (- 6.85)$_{257}$; (+ 3.03)$_{246}$; IR (KBr) ν_{max} 3429, 1640, 1423, 1265, 738 cm^{-1}; LC-MS *m/z* 271.6 $[M+H]^+$, 251.6, 229.5, 187.4, 167.3, 149.6, 131.1, 144.4, 102.4, 74.1, 55.5; ^{1}H-NMR ($CDCl_3$, 25 ^{o}C) δ (800 MHz, ppm): 5.43 (1H, *dd*, *J* = 13.2, 3.0 Hz, H-2), 3.09 (1H, *dd*, *J* = 17.2, 13.2 Hz, H-3α), 2.83 (1H, *dd*, *J* = 17.1, 3.0 Hz, H-3β), 6.07 (1H, *d*, *J* = 2.3 Hz, H-6), 6.09 (1H, *d*, *J* = 2.3 Hz, H-8), 7.38-7.47 (2H, *m*, H-2′/6′), 7.38-7.47 (2H, *m*, H-3′/5′), 7.38-7.47 (1H, *m*, H-4′), 3.82 (3H, *s*, 7-OCH_3), 12.02 (1H, *s*, 5-OH); ^{13}C-NMR ($CDCl_3$, 25 ^{o}C) δ (200 MHz, ppm): 79.4 (C-2), 43.6 (C-3), 195.9 (C-4), 103.3 (C-4a), 164.3 (C-5), 95.3 (C-6), 168.1 (C-7), 94.4 (C-8), 162.9 (C-8a), 138.5 (C-1′), 126.3 (C-2′/6′), 129.0 (C-3′/5′), 129.0 (C-4′), 55.9 (-OCH_3).



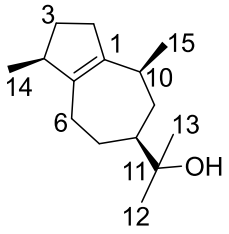
Pinocembrin (7): [5] White powder. mp 205 – 208 °C; $[\alpha]_D^{20}$ - 20.8 (c, 1.5, MeOH), UV (MeOH)λ_{max} 295, 210 nm; IR (KBr) ν_{max} 3430, 1640, 1265, 740 cm^{-1}; LC-MS *m/z* 257.6 $[M+H]^+$, 237.1, 233.1, 223.5, 207.4, 183.1, 166.3, 151.3, 149.5, 145.2, 129.0; ^{1}H-NMR ($CDCl_3$, 25 ^{o}C) δ (800 MHz, ppm): 12.04 (1H, *s*, H-5-OH), 7.45 (4H, *m*, H-2′/6′ and H-3′/5′), 7.40 (1H, *m*, H-4′), 6.00 (2H, *s*, H-6 and H-8), 5.43 (1H, *dd*, *J* = 13.1 and 3.1 Hz, H-2), 3.09 (1H, *dd*, *J* = 17.1, 13.1, H-3α), 2.83 (1H, *dd*, *J* = 17.1, 3.1 Hz, 3β); ^{13}C-NMR ($CDCl_3$, 25 ^{o}C) δ (200 MHz, ppm): 79.4 (C-2), 43.5 (C-3), 195.9 (C-4), 103.4 (C-4a), 164.5 (C-5), 96.9 (C-6), 164.5 (C-7), 95.6 (C-8), 163.3 (C-8a), 138.4 (C-1′), 129.1 (C-4′), 129.0 (C-3′/5′), 126.3 (C-2′/6′).



Benzylbenzoate (8): [6] Colourless oil. UV (MeOH)λ_{max} 225nm; IR (KBr) ν_{max} 3425, 3056, 1641, 1423, 1265, 894, 739 cm^{-1}; LC-MS *m/z* 213.1 $[M+H]^+$, 189.4, 181.1, 175.4, 160.3, 149.4, 137.4, 129.0, 121.0, 114.2, 122.3, 98.9, 91.3,; ^{1}H-NMR ($CDCl_3$, 25 ^{o}C) δ (800 MHz, ppm): 8.08 (2H, *d*, *J* = 8.1 Hz, H-2/6), 7.45 (2H, *m*, H-3/5), 7.56 (1H, *m*, H-4), 7.46 (2H, *m*, H-2′/6′), 7.39 (2H, *t*, *J* = 7.4 Hz, H-3′/5′), 7.40 (1H, *d*, *J* = 7.4 Hz, H-4′), 5.37 (2H, *s*, H-7′); ^{13}C-NMR ($CDCl_3$, 25 ^{o}C) δ (200 MHz, ppm): 132.7 (C-1), 132.3 (C-2/6), 131.0 (C-3/5), 135.7 (C-4), 131.2 (C-2′/6′), 130.8 (C-3′/5′). 130.9 (C-4′), 138.7 (C-1′), 169.1 (C- 7), 69.3 (C- 7′).

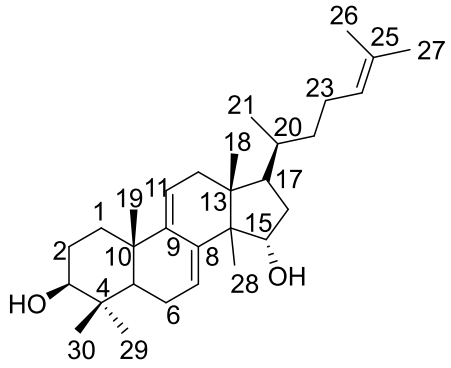


*2-Methoxybenzylbenzoate (**9**)*: [6] Colourless oil. UV (MeOH)$_{\lambda max}$ 225, 275nm; LC-MS *m/z* 265.2 $[M+Na]^+$, 243.7, 241.4, 218.5, 196.2, 175.4, 149.5, 129.0, 125.2, 121.5, 120.7, 114.4, 98.4, 91.2, 79.2, 60.3; 8.11; ^{1}H-NMR ($CDCl_3$, 25 ^{o}C) δ (800 MHz, ppm): (2H, *dd*, *J* = 8.1, 0.9 Hz, H-2/6), 7.55 (1H, *m*, H-1), 7.44 (2H, *m*, H-3′/5′), 7.42 (1H, *m*, H-4′), 7.33 (1H, *m*, H-6′), 6.97 (1H, *t*, *J* = 7.4 Hz, H-5′), 6.92 (1H, *d*, *J* = 8.2 Hz, H-3′), 5.42 (2H, *s*, H-7′), 3.86 (3H, *s*, -OCH_3); ^{13}C-NMR ($CDCl_3$, 25 ^{o}C) δ (200 MHz, ppm): 124.9 (C-1′), 130.6 (C-1), 157.7 (C-2′), 129.9 (C-2/6), 133.0 (C-4), 128.5 (C-3/5), 166.7 (C-7), 124.9 (C-1'), 157.7 (C-2'), 110.6 (C-3′), 129.6 (C-4′), 120.6 (C-5′), 129.6 (C-6′), 62.3 (C-7′), 55.6 (-OCH_3).



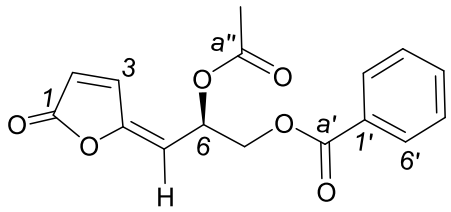
*Guaiol (**10**)*: [7] White crystals. mp 91 – 92 °C; $[\alpha]_D^{20}$ + 97.5 (c, 0.15, $CHCl_3$); UV ($CHCl_3$)$_{\lambda max}$ 205 nm; CD (MeOH, λnm (Δε; $M^{-1}cm^{-1}$): (- 7.31)$_{242}$; (+ 1.26)$_{210}$; IR (KBr) ν_{max} 3429, 1641,1423, 1265, 739 cm^{-1}; LC-MS *m/z* 245.7 $[M+Na]^+$, 228.7, 223.5, 205.4, 163.7, 150.2, 149.5, 135.6, 114.2, 109.4, 107.2, 95.4, 93.2, 81.4, 72.2. ^{1}H-NMR ($CDCl_3$, 25 ^{o}C) δ (800 MHz,

ppm): 2.53 (1H, *m*, H-4), 2.43 (1H, *m*, C-2a), 2.30 (1H, *m*, H-10), 2.15 (1H, *d*, *J* = 15.7 Hz, H-6a),2.12 (1H, *m*, H-2b), 1.95 (2H, *m*, H-6b and H-3a), 1.81 (1H, *dddd)*, *J* = 13.0, 9.6, 4.0, , 1.7 Hz, H-7a), 1.72 (1H, *m*, J = 13.7, 9.4, 7.6, 3.4 Hz, H-9a), 1.56 (2H, *m*, H-9b and H-8), 1.45 (1H, *dddd*, *J* = 13.0, 10.6, 7.5, 3.4 Hz, H-7b), 1.29 (1H, *ddd)*, *J* = 12.6, 9.0, 5.0, Hz, H-3b), 1.20 (1H, *s*, OH), 1.19 (3H, *s*, CH_3-12), 1.16 (3H, *s*, CH_3-13), 0.99 (3H, *d*, J = 7.2 Hz, CH_3-15), 0.95 (3H, *d*, J = 6.9 Hz, CH_3-14); ^{13}C-NMR ($CDCl_3$, 25 °C) δ (200 MHz, ppm): 140.2 (C-1), 139.0 (C-5), 73.7 (C-11), 49.8 (C-8), 46.5 (C-4), 35.5 (C-2), 33.9 (C-9), 33.8 (C-10), 31.1 (C-3), 28.0 (C-6), 27.6 (C-12), 27.5 (C-7), 26.2 (C-13), 20.1 (C-14), 19.9 (C-15).



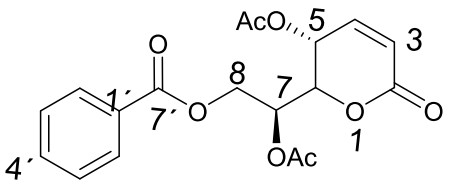
Polycarpol (***11***): [2, 5, 8] White crystals. mp 184 – 185 °C; $[\alpha]_D^{20}$ + 97.5 (c, 5.8, CH_2Cl_2), UV (CH_2Cl_2)$_{\lambda max}$ 245nm; CD (MeOH, λnm (Δε; $M^{-1}cm^{-1}$): (- 7.67)$_{290}$; (+ 3.61)$_{212}$; IR (KBr) ν_{max} 3418, 3055, 1640, 1423, 1265, 895, 739 cm^{-1}; LC-MS *m*/*z* 463.5 $[M+Na]^+$, 428.9, 416.6, 377.4, 371.6, 343.2, 320.9, 302.5, 259.4, 251.4, 227.1, 175.5, 149.6, 142.0, 125.1, 123.3, 98.1, 83.3, 60.3; ^{1}H-NMR ($CDCl_3$, 25 °C) δ (800 MHz, ppm): 1.98 (1H, *m*, H-1α) 1.43 (1H, *m*, H-1β), 1.72 (1H, *m*, H-2α), 1.65 (1H, *m*, H-2β), 3.24 (1H, *dd*, *J* = 11.6, 3.9 Hz, H-3α), 1.45 (1H, *dd*, *J*

= 13.3, 3.9 Hz, H-5), 2.16 (1H, *m*, H-6α), 2.07 (1H, *m*, H-6β), 5.85 (1H, *d*, *J* = 6.2 Hz, H-7), 5.30 (1H, *d*, *J* = 6.2 Hz, H-11), 2.29 (1H, *m*, H-12α), 2.05 (1H, *m*, H-12β), 4.27 (1H, *m*, H-15), 1.96 (1H, *m*, H-16α), 1.72 (1H, *m*, 16β), 1.35 (1H, *m*, H-17), 0.61 (3H, *s*, 18-CH_3), 0.93 (3H, *s*, 19-CH_3), 1.86 (1H, *m*, H-20), 0.88 (3H, *s*, 21-CH_3), 1.35 (1H, *m*, H-22α), 1.03 (1H, *m*, H-22β), 2.03 (1H, *m*, H-23), 1.85 (1H, *m*, H-23), 5.08 (1H, *t*, *J* = 6.9 Hz, H-24), 1.60 (3H, *s*, H-26), 1.68 (3H, *s*, H-27), 0.88 (3H, *s*, H-28), 0.98 (3H, *s*, H-29), 1.00 (3H, *s*, H-30); ^{13}C-NMR ($CDCl_3$, 25 °C) δ (200 MHz, ppm): 35.9 (C-1), 27.9 (C-2), 79.0 (C-3), 38.8 (C-4), 49.1 (C-5), 23.1 (C-6), 121.4 (C-7), 141.0 (C-8), 146.2 (C-9), 37.6 (C-10), 116.2 (C-11), 38.6 (C-12), 44.5 (C-13), 51.9 (C-14), 74.9 (C-15), 40.3 (C-16), 49.0 (C-17), 16.1 (C-18), 23.0 (C-19), 36.4 (C-20), 18.5 (C-21), 35.9 (C-22), 25.0 (C-23), 125.1 (C-24), 131.3 (C-25), 25.9 (C-26), 17.8 (C-27), 17.3 (C-28), 28.3 (C-29), 16.0 (C-30).



*(E)-Acetylmelodorinol (**12**)*: [5] Colourless oil. $[\alpha]_D^{20}$ – 2.8 (c, 1.1, MeOH), UV (MeOH)$_{\lambda max}$ 265, 225 nm; CD (MeOH, λnm (Δε; $M^{-1}cm^{-1}$): (- 0.99)$_{329}$; (+ 1.31)$_{311}$; (- 1.56)$_{301;}$ (+1.34)$_{281}$; IR (KBr) ν_{max} 3430, 2082, 1640, 1265, 739 cm^{-1}; LC-MS *m*/*z* 303.4 $[M+H]^+$ 291.1, 274.6, 273.4, 251.4, 231.3, 175.8, 149.5, 129.0, 109.5, 105.1, 91.3, 81.4, 79.1, 73.9, 60.1; ^{1}H-NMR ($CDCl_3$, 25 °C) δ (800 MHz, ppm): 6.34 (1H, *d*, *J* = 5.7 Hz, H-2), 7.90 (1H, *d*, J = *5.7* Hz, H-3), 5.72

(1H, *dd*, *J* = 10.0, 1.1 Hz, H-5), 5.98 (1H, *ddd*, *J* = 10.8, 67, 4.2 Hz, H-6), 4.53 (1H, *dd*, *J* = 11.8, 4.2 Hz, H-7α), 4.47 (1H, *dd*, *J* = 11.6, 6.7 Hz, H-7β), 8.01 (2H, *dd*, *J* = 8.1, 1.1 Hz, H-2′/6′), 7.46 (2H, *t*, *J* = 7.8, 7.8 Hz, H-3′/5′), 7.60 (1H, *m*, H-4′), 2.10 (3H, *s*, -CH_3), ^{13}C-NMR ($CDCl_3$, 25 ^{o}C) δ (200 MHz, ppm): 168.7 (C-1), 122.6 (C-2), 140.2 (C-3), 153.5 (C-4), 107.5, (C-5), 66.8 (C-6), 65.1 (C-7), 129.3 (C-1′), 129.7 (C-2′/6′), 128.6 (C-3′/5′), 133.5 (C-4′), 166.0 (C-α′), 170.1 (C-α″).



*Cleistenolide (**13**)*: [2, 5] White needles. Green upon spraying with anisaldehyde reagent; mp 128-130 ^{o}C; IR 2965 cm^{-1}, 1749.72 cm^{-1}, 1601.20 cm^{-1}; ^{1}H-NMR ($CDCl_3$, 25 ^{o}C) δ (800 MHz, ppm): 6.31 (*d*, 9.6, H-3), 7.02 (*dd*, 9.6, 6.4, H-4), 5.44 (*dd*, 6.4, 3.2, H-5), 4.82 (*dd*, 10.4, 2.4, H-6), 5.52 (*ddd*,10.4, 4.4, 2.4, H-7), 4.56 (*dd*, 12.8, 4.8 H-8α), 4.95 (*dd*, 12.8, 2.4, H-8β), 2.06 (H-11), 2.11 (*s*, H-13), 8.04 (*dd*, 8.8, 0.8, H-2′), 7.48 (*dd*, 8.0, 8.0, H-3′), 7.60 (*t*, 8.0, H-4′) 7.48, (*dd* (8.0, 8.0, H-5′), 8.04 (*dd* 8.8, 0.8 H-6′); ^{13}C-NMR ($CDCl_3$, 25 ^{o}C) δ (200 MHz, ppm): 161.2 (C-2), 125.5 (C-3), 139.9 (C-4), 75.6 (C-5), 170.0 (5-O<u>C</u>OCH_3), 20.6 (5-<u>C</u>H_3COO), 59.9 (C-6), 67.8 (C-7), 169.6 (7-O<u>C</u>OCH_3), 20.8 (7-<u>C</u>H_3COO) 62.2 (C-8), 166.9 (7′-O<u>C</u>OPh), 129.7 (C-1′), 129.8 (C-2′/6′), 128.6 (C-3′/5′), 133.4 (C-4′)

3. X-Ray crystallography for 7-methoxyisochamanetin (5) and guaiol (10)

X-Ray data for single crystals of **5** and **10** were collected on an Agilent SuperNova Dual source diffractometer, equipped with an Atlas detector, at T = 120.0 K for **5** and T = 123.0 K for **10** using mirror-monochromatized Cu-Kα radiation (λ = 1.54184 Å). The data collection and reduction were performed using the program *CrysAlisPro*, [9] and the intensities were corrected using Gaussian face index absorption correction method [9] for **5** and **10**. The structure was solved by Intrinsic Phasing method with SHELXT [10] and refined by full-matrix least-squares using SHELXL-2015 [11] within *OLEX2* package. [12] All non-hydrogen atoms were refined anisotropically, and all the hydrogen atoms were refined using riding models with U_{eq}(H) of 1.5U_{eq}(parent) for terminal groups and 1.2 U_{eq}(parent) for non-terminal groups.

Compound **5**: 0.335×0.085×0.066 mm, $C_{23}H_{20}O_5$, M = 376.39, orthorhombic, space group $P2_12_12_1$, a = 5.27836(4) Å, b = 15.81290(14) Å, c = 21.27803(16) Å, α = 90°, β = 90°, γ = 90°, V = 1776.00(2) Å^3, Z = 4, ϱ = 1.408 g cm^{-3}, μ = 0.811 mm^{-1}, F(000) = 792, 25733 reflections (θ_{max} = 66.746°) measured (3154 unique, R_{int} = 0.0338, completeness = 99.89%), Final R indices ($I > 2\sigma(I)$): R_1= 0.0275, wR_2 = 0.0709, R indices (all data): R_1= 0.0279, wR_2 = 0.0713. GoF = 1.081 for 256 parameters and 0 restraints, largest diff. peak and hole 0.140/–0.186 eÅ^{-3}. Absolute structure parameter x = -0.07(5). CCDC number - 1937081 contains the supplementary data for this structure.

Compound **10**: 0.188×0.081×0.075 mm, $C_{15}H_{26}O$, M = 222.36, trigonal, space group $P3_2$, a = 13.02112(10) Å, b = 13.02112(10) Å, c = 7.05780(5) Å, α = 90°, β = 90°, γ = 120°, V = 1036.327(18) Å^3, Z = 3, ϱ = 1.069 g cm^{-3}, μ = 0.483 mm^{-1}, F(000) = 372, 16437 reflections (θ_{max} = 76.545°) measured (2884 unique, R_{int} = 0.0254, completeness = 99.99%), Final R indices ($I > 2\sigma(I)$): R_1= 0.0370, wR_2 = 0.0986, R indices (all data): R_1= 0.0371, wR_2 = 0.0988. GOF = 1.089 for 150 parameters and 1 restraint, largest diff. peak and hole 0.334/–0.290 eÅ^{-3}. Absolute structure parameter x = 0.01(6). CCDC number - 1937082 contains the supplementary data for this structure.

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