

Supporting Information

Probing inhibitory effects of synthesized steroids and ergostane/lanosta-related compounds isolated from *Antrodia camphorata* using cell-based impedance spectroscopy

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NMR spectra of five newly synthesized steroids

3 β -Acetoxy-8 α ,9 α -epoxy-5 α -lanostane (S1)

δ_{H} (CDCl₃) 0.77 (3H, s, H-18), 0.82 (3H, s, H-28), 0.85 (6H, br s, H-26, H-29), 0.86-0.88 (6H, m, H-21, H-27), 0.89 (3H, s, H-30), 1.14 (3H, s, H-19), 1.27-1.98 (4H, m, H-5, H-17, H-20, H-25), 2.03 (3H, s, Ac-CH₃), 4.46 (1H, dd, J 10.5, 4.2, H-3); δ_{C} (CDCl₃) 16.19 (C-29), 16.27 (C-18), 16.39 (C-6), 17.08 (C-19), 18.99 (C-21), 19.95 (C-30), 21.29 (Ac-CH₃), 21.49 (C-11), 22.53 (C-26), 22.82 (C-27), 23.37 (C-7), 23.58 (C-2), 24.07 (C-23), 26.88 (C-12), 27.99 (C-25), 28.28 (C-28), 28.48 (C-16), 31.89 (C-15), 32.55 (C-1), 36.28 (C-20), 36.36 (C-22), 37.43 (C-4), 37.80 (C-10), 39.49 (C-24), 41.93 (C-5), 43.63 (C-13), 48.33 (C-17), 48.83 (C-14), 67.99 (C-8), 70.46 (C-9), 80.51 (C-3), 170.77 (Ac-C=O).

3 β -Acetoxy-5 α -lanost-7,9(11)-diene (S2)

δ_{H} (CDCl₃) 0.57 (3H, s, H-18), 0.83-0.88 (15H, m, H-21, H-26, H-27, H-28, H-30), 0.96 (3H, s, H-29), 1.01 (3H, s, H-19), 1.10-1.75 (4H, m, H-5, H-17, H-20, H-25), 2.04 (3H, s, Ac-CH₃), 4.52 (1H, dd, J 10.8, 5.1, H-3), 5.32 (1H, br d, J 5.7, H-11), 5.46 (1H, br s, H-

7); δ_C (CDCl₃) 15.68 (C-18), 16.94 (C-29), 18.52 (C-21), 21.30 (Ac-CH₃), 22.56 (C-26), 22.80 (C-19, C-6), 22.84 (C-7), 24.14 (C-23), 24.28 (C-2), 25.56 (C-30), 27.92 (C-16), 28.02 (C-25), 28.10 (C-28), 31.51 (C-15), 35.43 (C-1), 36.29 (C-20), 36.43 (C-22), 37.25 (C-10), 37.62 (C-4), 37.87 (C-12), 39.53 (C-24), 43.73 (C-13), 49.28 (C-5), 50.35 (C-14), 51.06 (C-17), 80.82 (C-3), 116.63 (C-11), 119.81 (C-7), 142.84 (C-8), 145.61 (C-9), 170.86 (Ac-C=O).

3 β -Acetoxy-5 α -lanost-9(11)-en-7-one (S3)

δ_H (CDCl₃) 0.68 (3H, s, H-18), 0.76 (3H, s, H-30), 0.83 (3H, s, one of H-28), 0.85-0.90 (9H, 3 x d, H-21, H-26, H-27), 0.93 (3H, s, H-29), 1.16 (3H, s, H-19), 1.27-1.98 (4H, m, H-5, H-17, H-20, H-25), 2.06 (3H, s, Ac-CH₃), 2.39 (1H, s, H-6a), 2.42 (1H, d, *J* 4.8, H-6b), 2.89 (1H, d appears as a br s, *J* 2.7, H-8 β), 4.52 (1H, dd, *J* 10.8, 4.5, H-3), 5.39-5.43 (1H, m, H-11); δ_C (CDCl₃) 15.21 (C-29), 15.71 (C-18), 17.77 (C-30), 18.42 (C-21), 20.40 (C-19), 21.26 (Ac-CH₃), 22.55 (C-26), 22.83 (C-27), 23.95 (C-2), 24.07 (C-23), 27.29 (C-28), 28.00 (C-25), 28.13 (C-16), 32.55 (C-1), 34.44 (C-15), 35.39 (C-1), 36.15 (C-20), 36.45 (C-22), 37.21 (C-12), 38.03 (C-4), 38.37 (C-10), 38.93 (C-6), 39.49 (C-24), 44.63 (C-13), 47.23 (C-14), 47.67 (C-5), 49.88 (C-17), 56.39 (C-8), 80.22 (C-3), 117.80 (C-11), 143.37 (C-9), 170.81 (Ac-C=O), 212.42 (C-7, C=O). Found (HRMS, EI): *m/z* 485.3995. C₃₀H₅₃O₃ requires (M + H)⁺ 485.3996; 485 (M⁺ + H, 100%).

5 α -lanost-8-en-3,7,11-trione (S4)

δ_H (CDCl₃) 0.82 (3H, s, H-18), 0.85-0.90 (9H, 3 x d, H-21, H-26, H-27), 1.11 (3H, s, H-29), 1.13 (3H, s, H-28), 1.22 (3H, s, H-30), 1.28 (3H, s, H-19), 1.27-2.15 (3H, m, H-17, H-20, H-25), 2.38 (1H, dd, *J* 14.4, 2.4, H-5), 2.46-2.67 (5H, m, H-12 α , H-2, H-6), 2.74 (1H, d, *J* 17.2, H-12 β), 2.97 (1H, ddd, *J* 14.0, 8.9, 6.4, H-1 β); δ_C (CDCl₃) 16.92 (C-29),

17.97 (C-18), 18.56 (C-21), 20.36 (C-30), 20.40 (C-19), 22.53 (C-26), 22.81 (C-27), 24.00 (C-23), 25.92 (C-28), 27.36 (C-19) 27.48 (C-16), 27.99 (C-25), 32.55 (C-15), 34.44 (C-1), 31.96 (C-1), 34.05 (C-20), 35.03 (C-22), 36.18 (C-2), 37.01 (C-10), 38.23 (C-6), 39.41 (C-24), 46.72 (C-4), 46.85 (C-13), 48.72 (C-5), 49.26 (C-14), 49.81 (C-17), 51.32 (C-12), 149.72 (C-8), 151.71 (C-9), 201.37 (C-11, C=O), 202.20 (C-7, C=O), 215.67 (C-3, C=O). ESI-MS ($M + H$)⁺: 455.3523. C₃₀H₄₇O₃ requires 455.33527. 455 ($M^+ + H$, 10%).

24(R)-5 α -lanost-8-en-3,24,25-triol (S5a) and 24(S)-5 α -lanost-8-en-3,24,25-triol (S5b)

24(R)-5 α -lanost-8-en-3,24,25-triol (S5a)

δ_H (CDCl₃) 0.70 (3H, s, H-18), 0.81 (3H, s, H-29), 0.88 (3H, s, H-30), 0.91 (3H, d, J 6.1, H-21), 0.98 (3H, s, H-19), 0.99 (3H, s, H-28), 1.16 (3H, s, H-26), 1.21 (3H, s, H-27), 3.23 (1H, dd, J 11.1, 4.8), 3.34 (1H, m, H-24); δ_C (CDCl₃) 15.43 (C-29), 15.80 (C-18), 18.27 (C-6), 18.57 (C-21), 19.16 (C-19), 21.02 (C-11), 23.28 (C-26), 24.27 (C-30), 26.52 (C-12), 26.60 (C-27), 27.86 (C-2), 27.99(C-28), 28.32 (C-23), 28.43 (C-7), 30.85 (C-16), 31.03 (C-15), 33.15 (C-22), 35.61 (C-1), 36.32 (C-20), 37.05 (C-10), 38.91 (C-4), 44.52 (C-13), 49.83 (C-14), 50.44 (C-5), 50.60 (C-17), 78.79 (C-24), 79.00 (C-3), 134.39 (C-8), 134.44 (C-9).

24(S)-5 α -lanost-8-en-3,24,25-triol (S5b)

δ_H (CDCl₃) 0.69 (3H, s, H-18), 0.81 (3H, s, H-29), 0.88 (3H, s, H-30), 0.92 (3H, d, J 6.1, H-21), 0.98 (3H, s, H-19), 0.99 (3H, s, H-28), 1.16 (3H, s, H-26), 1.21 (3H, s, H-27), 3.23 (1H, dd, J 11.1, 4.8), 3.29 (1H, m, H-24); δ_C (CDCl₃) 15.43 (C-29), 15.80 (C-18), 18.27 (C-6), 18.85 (C-21), 19.16 (C-19), 21.02 (C-11), 23.22 (C-26), 24.27 (C-30), 26.52 (C-12), 26.60 (C-27), 27.99 (C-2), 27.86 (C-23), 28.20 (C-28), 28.73 (C-7), 30.85 (C-16),

31.03 (C-15), 33.58 (C-22), 35.61 (C-1), 36.76 (C-20), 37.05 (C-10), 38.91 (C-4), 44.52 (C-13), 49.83 (C-14), 50.44 (C-5), 50.54 (C-17), 79.65 (C-24), 79.00 (C-3), 134.39 (C-8), 134.44 (C-9).