

1. ^{13}C NMR

Gensenoside Rg₁ (1): ^{13}C NMR (100 MHz, CD_3OH) δ 130.93(C-25), 124.48(C-24), 104.18(C-1'), 96.91(C-1''), 83.56(C-20), 79.55(C-6), 78.50(C-3), 77.67(C-3'), 76.86(C-3''), 76.52(C-5'), 76.24(C-5''), 74.10(C-2'), 73.99(C-2''), 70.49(C-12), 70.34(C-4'), 69.83(C-4''), 61.57(C-6'), 61.17(C-6''), 60.42(C-5), 51.76(C-17), 51.07(C-14), 49.24(C-9), 48.04(C-13), 43.94(C-7), 40.51(C-8), 39.11(C-4), 39.01(C-10), 38.84(C-1), 35.26(C-22), 30.17(C-28), 30.06(C-15), 29.60(C-11), 26.23(C-2), 25.90(C-16), 24.53(C-26), 22.86(C-23), 21.52(C-21), 16.63(C-27), 16.48(C-19), 16.31(C-18), 15.84(C-30), 14.78(C-29).

Gensenoside Re (2): ^{13}C NMR (100 MHz, CD_3OD) δ 130.94(C-25), 124.46(C-24), 100.26(C-1'), 100.18(C-1''), 96.91(C-1'''), 83.56(C-20), 78.42(C-3), 77.83(C-6), 77.72(C-3'), 76.86(C-3'''), 76.64(C-5'), 76.50(C-5'''), 74.01(C-2'), 73.62(C-2'''), 72.62(C-4''), 71.10(C-2''), 70.83(C-3''), 70.55(C-12), 70.47(C-4'), 69.86(C-4'''), 68.28(C-5''), 61.76(C-6'), 61.17(C-6'''), 60.08(C-5), 51.72(C-17), 51.08(C-14), 48.92(C-9), 48.49(C-13), 40.59(C-8), 38.99(C-4), 38.91(C-10), 38.86(C-1), 35.26(C-22), 30.60(C-28), 30.35(C-15), 29.55(C-11), 26.14(C-2), 25.91(C-16), 24.49(C-26), 22.83(C-23), 21.47(C-21), 16.66(C-27), 16.58(C-19), 16.31(C-18), 16.09(C-6''), 15.94(C-30), 15.86(C-29).

Luteolin (3): ^{13}C NMR (100 MHz, DMSO) δ 182.12(C-4), 164.62(C-7), 164.37(C-2), 161.96(C-5), 157.77(C-9), 150.19(C-4'), 146.22(C-3'), 121.98(C-1'), 119.46(C-6'), 116.49(C-5'), 113.85(C-2'), 104.17(C-10), 103.35(C-3), 99.31(C-6), 94.31(C-8).

Luteolin-5-O-glucoside (4): ^{13}C NMR (100 MHz, DMSO) δ 177.41(C-4), 163.07(C-7),

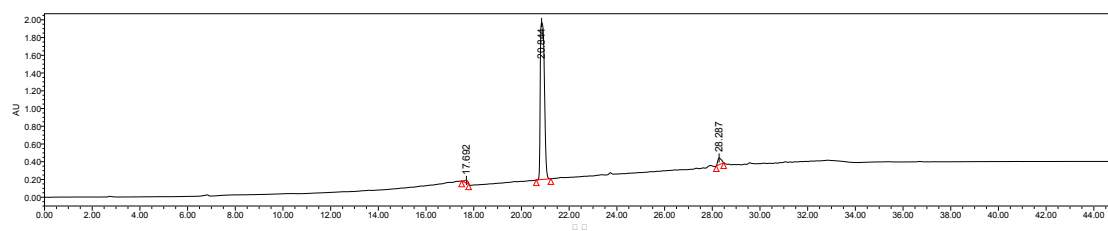
161.84(C-2), 159.16(C-5), 158.80(C-9), 149.74(C-4'), 146.18(C-3'), 122.01(C-1'), 119.02(C-6'), 116.48(C-5'), 113.61(C-2'), 108.74(C-10), 106.18(C-3), 105.05(C-1''), 104.85(C-6), 98.67(C-8), 78.05(C-5''), 76.10(C-3''), 74.13(C-2''), 70.20(C-4''), 61.35(C-6'').

Gensenoside Rb₁ (5): ¹³C NMR (100 MHz, CD₃OD) δ 130.86(C-25), 124.64(C-24), 104.01(C-1''), 103.59(C-1'''), 103.09(C-1'), 96.70(C-1'''), 89.95(C-3), 83.59(C-20), 79.67(C-2'), 77.23(C-3''), 77.10(C-6''), 77.06(C-5'), 76.94(C-3'''), 76.53(C-6'''), 76.53(C-3'''), 76.49(C-3'), 76.32(C-2''), 75.38(C-6'''), 74.93(C-2'''), 73.90(C-2'''), 73.74(C-12), 70.54(C-5'), 70.29(C-5''), 70.26(C-5'''), 70.18(C-5'''), 70.12(C-6'''), 68.84(C-6'), 61.73(C-6''), 61.39(C-6'''), 56.15(C-5), 51.48(C-17), 51.02(C-14), 49.70(C-9), 48.48(C-13), 39.58(C-8), 39.20(C-4), 38.88(C-1), 36.53(C-10), 35.40(C-22), 34.46(C-7), 30.11(C-15), 29.43(C-11), 27.05(C-28), 25.86(C-2), 24.59(C-16), 22.49(C-26), 21.19(C-23), 21.09(C-21), 17.86(C-6), 16.66(C-27), 16.03(C-30), 15.36(C-29), 15.32(C-18), 14.94(C-19).

Lobetyolin (6): ¹³C NMR (100 MHz, CD₃OD) δ 143.96(C-2), 137.49(C-11), 125.16(C-10), 109.09(C-3), 99.35(C-1'), 80.48(C-4), 79.83(C-9), 76.74(C-5), 76.63(C-3'), 76.57(C-5'), 73.74(C-2'), 73.44(C-6), 70.29(C-4'), 69.53(C-7), 65.18(C-8), 61.39(C-6'), 61.29(C-14), 31.48(C-13), 28.39(C-12), 17.51(C-1).

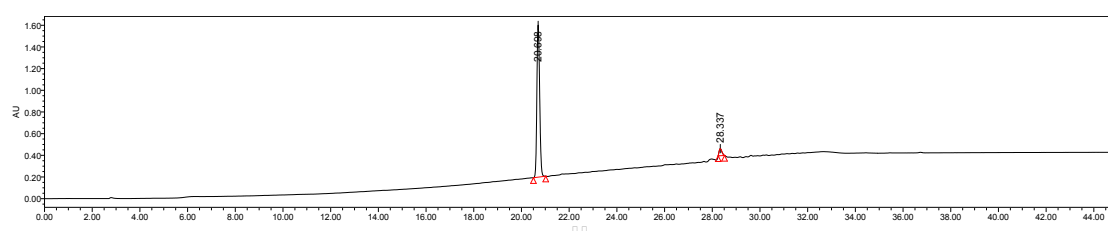
2. HPLC.

(1) ginsenoside Rg₁: 5mg/mL in methanol, 210 nm



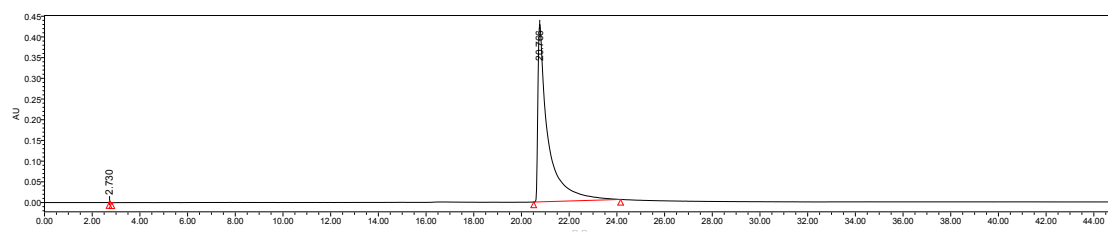
Peak no.	Retention time (min)	Peak area($\mu\text{v}\cdot\text{s}$)	area (%)
1	17.692	293188	1.31
2	20.844	21212530	95.10
3	28.287	799734	3.59

(2) ginsenoside Re: 5mg/mL in methanol, 210 nm



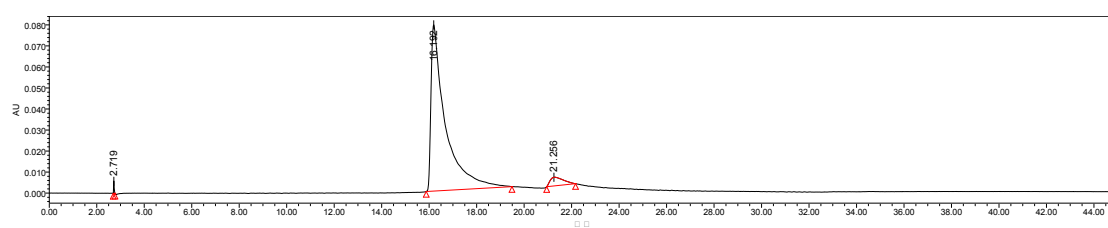
Peak no.	Retention time (min)	Peak area($\mu\text{v}\cdot\text{s}$)	area (%)
1	20.698	11370656	95.51
2	28.337	534554	4.49

(3) luteolin: 0.2 mg/mL in methanol, 350 nm



Peak no.	Retention time (min)	Peak area($\mu\text{v}\cdot\text{s}$)	area (%)
1	2.730	10963	0.09
2	20.766	12702532	99.91

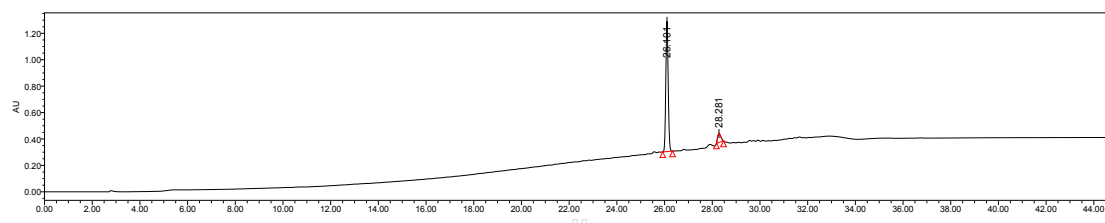
(4) luteolin-5-O-glucoside: 0.2 mg/mL in methanol, 350 nm



Peak	Retention time	Peak	area
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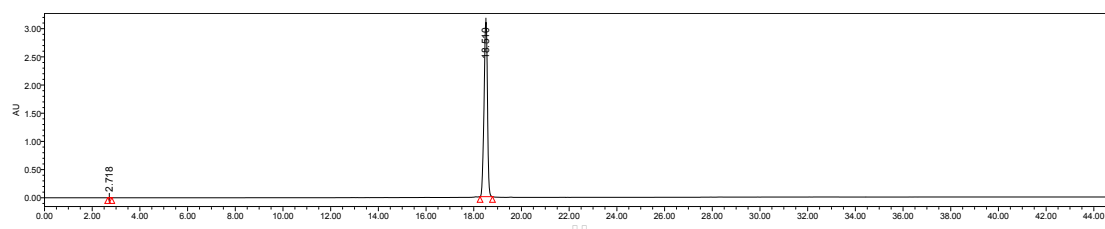
no.	(min)	area($\mu\text{v}\cdot\text{s}$)	(%)
1	2.719	9597	0.27
2	16.192	3345488	95.21
3	21.256	158866	4.52

(5) ginsenoside Rb1: 5 mg/mL in methanol, 210 nm



Peak no.	Retention time (min)	Peak area($\mu\text{v}\cdot\text{s}$)	area (%)
1	26.101	6796015	91.36
2	28.281	642717	8.64

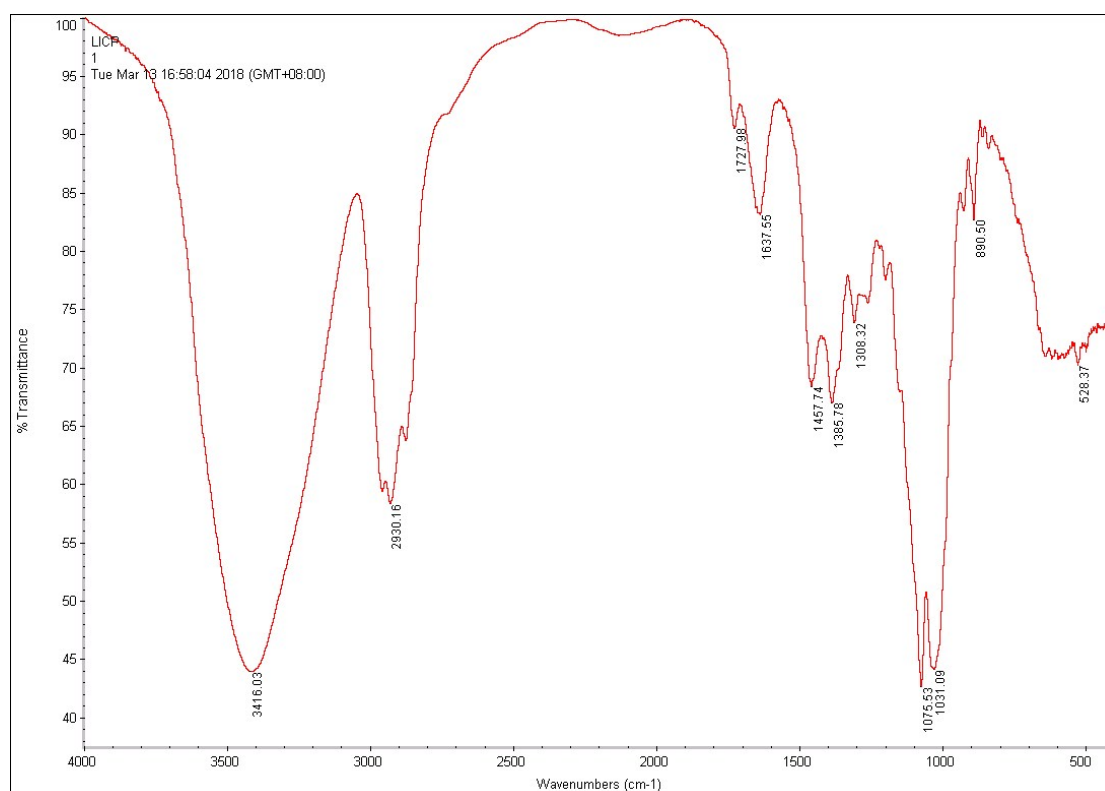
(6) lobetyolin: 2 mg/mL in methanol, 250 nm



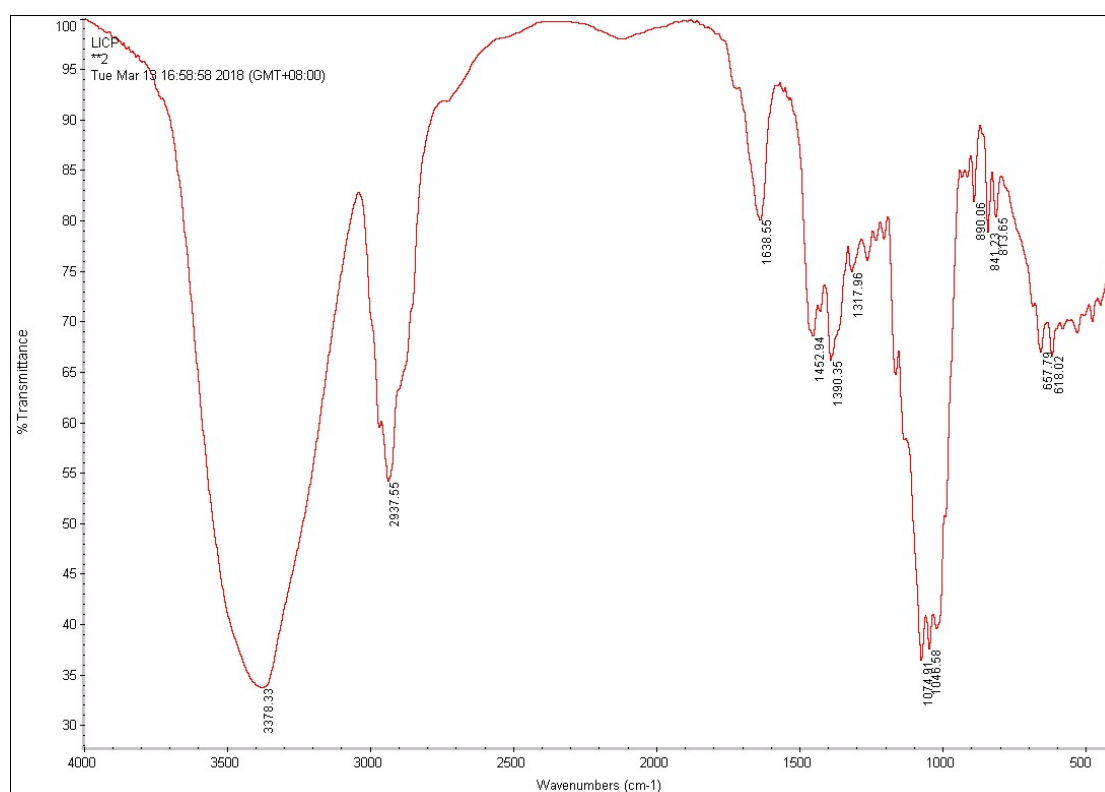
Peak no.	Retention time (min)	Peak area($\mu\text{v}\cdot\text{s}$)	area (%)
1	2.718	8099	0.03
2	18.510	30910266	99.97

3. IR

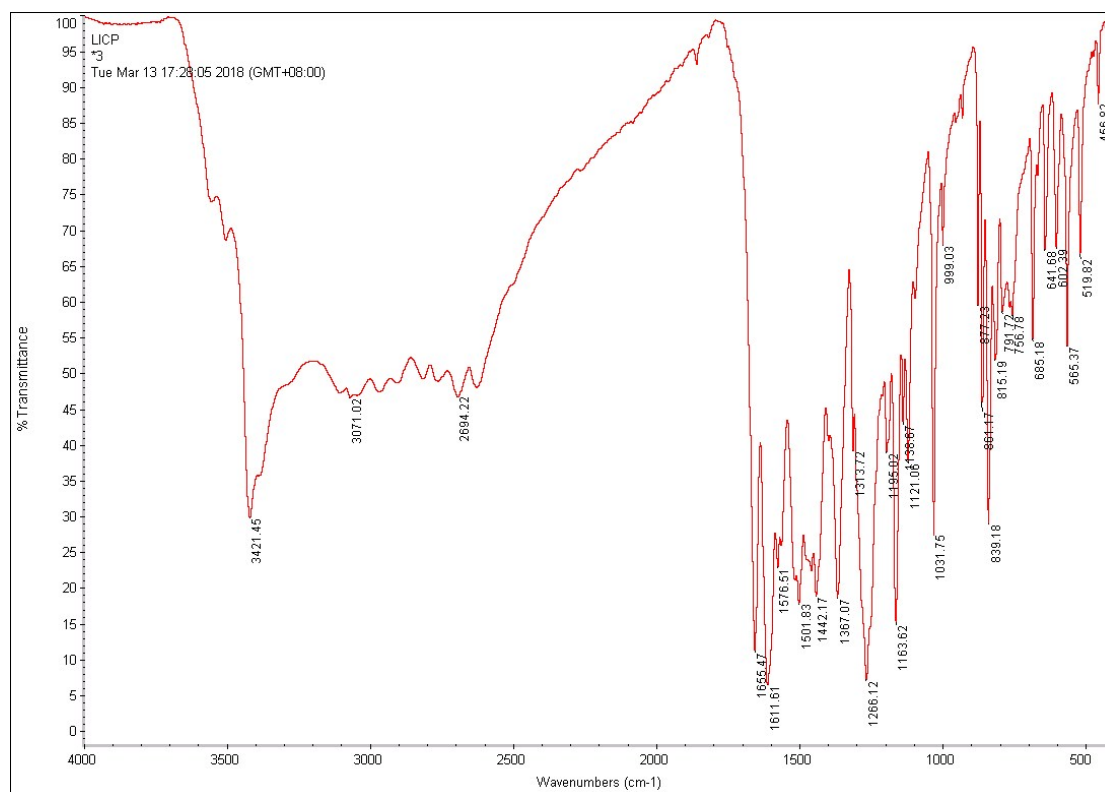
(1) ginsenoside Rg₁:



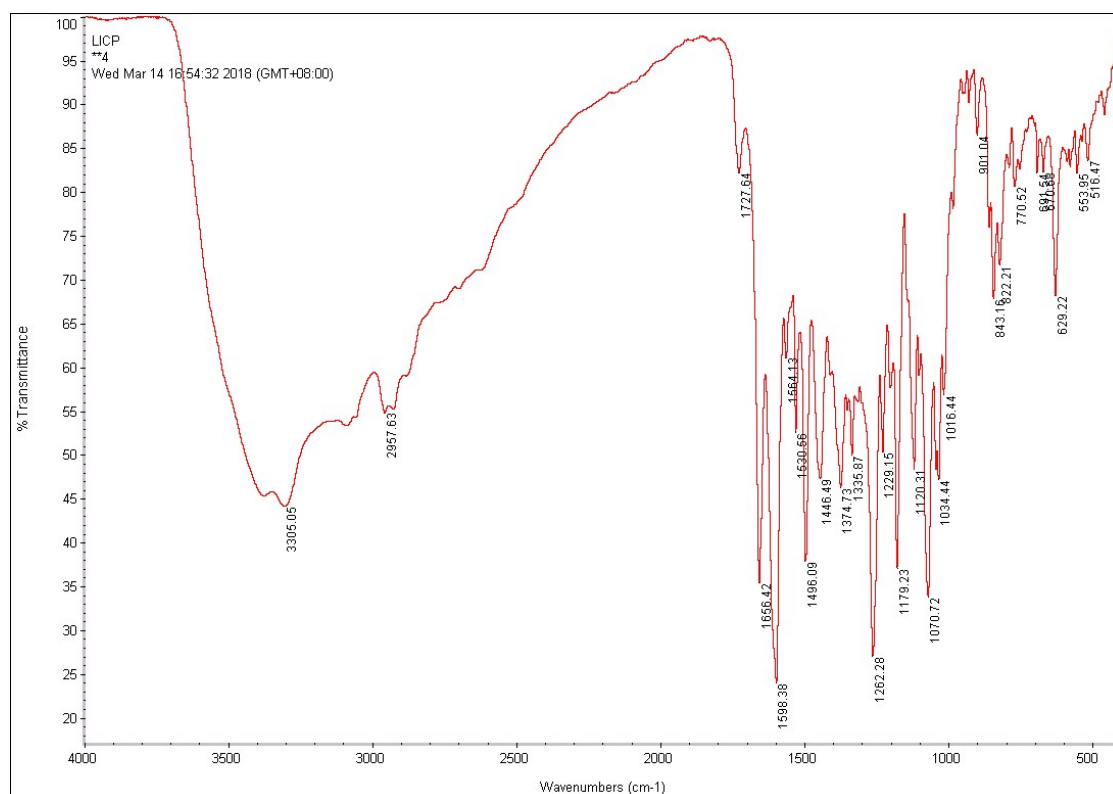
(2) ginsenoside Re:



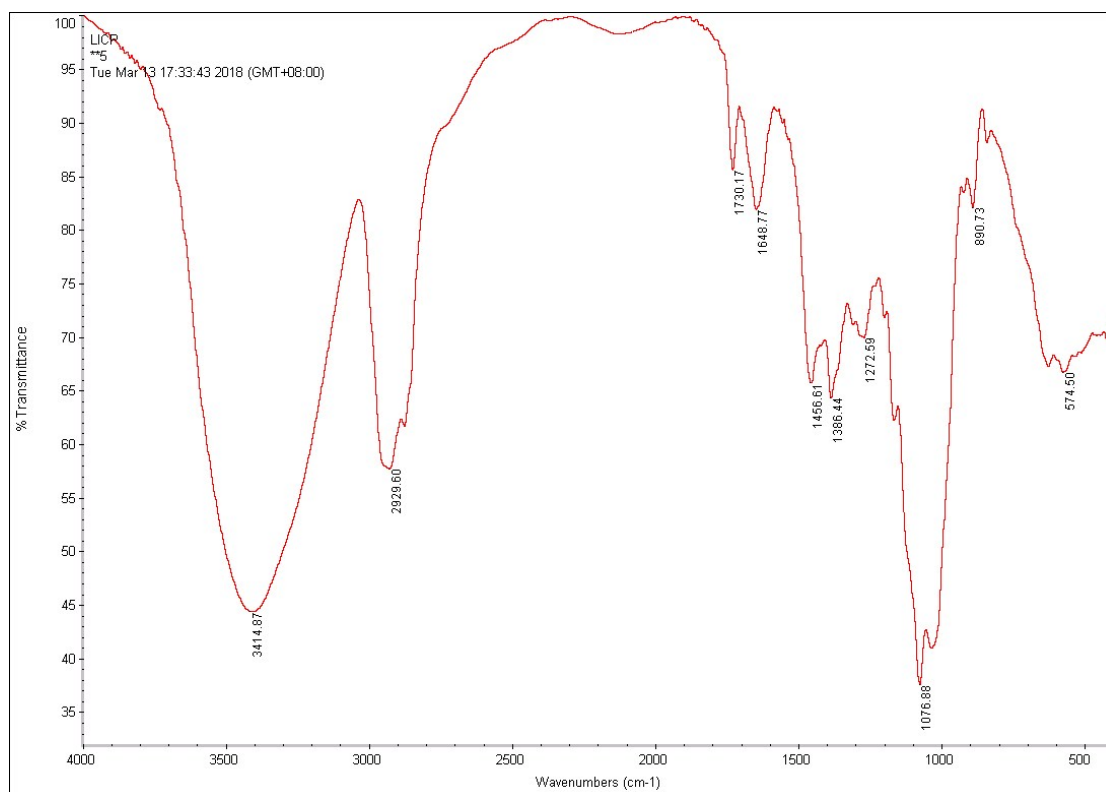
(3) luteolin:



(4) luteolin-5-O-glucoside:



(5) ginsenoside Rb1:



(6) lobetyolin:

