Table 1 ^{13}C NMR data of 1–3 in CD_3OD

(400 M Hz, δ in ppm with reference to the signal of CD_3OD)

	1	2	3
P-coumaroyl moiety			
1,1′	129.5	130.1	130.1
	126.1	126.1	126.1
2,2′,6,6′	130.7	130.8	130.9
	130.1	130.1	130.2
3,3′,5,5′	117.6	117.6	117.7
	117.0	117.0	117.0
4,4′	161.7	161.7	161.8
	160.0	159.3	159.0
7,7′	145.5	145.5	146.0
	143.8	143.5	143.5
8,8′	118.9	119.4	119.5
	115.1	115.0	114.7
9,9′	169.4	169.4	169.3
	167.4	167.3	167.0
Glucose moiety			
1″	102.1	99.6	99.5
2″	74.9	74.8	74.6
3″	78.4	76.0	73.3
4″	71.6	71.6	72.2
5″	75.7	75.9	73.3
6″	64.5	64.1	63.0
OAc		170.1	170.3
			170.0
		21.0	20.9
			20.9

EXPERIMENT

General All melting points were measured on a XRC-1 micro melting point apparatus produced by Sichuan University and uncorrected. Optical rotations were taken on a JASCO-20C digital polarimeter. IR spectra were recorded with a Perkin-Elmer 577 spectrometer. UV spectra were obtained on a UV 210A spectrometer. MS spectra were measured on a VG Autospec spectrometer. NMR spectra were run on a Bruker AM-400 spectrometer. The chemical shifts (δ) were expressed in ppm with reference to the solvent signals. Coupling constants (J) were given in Hz.

Plant material The aerial parts of *Bidens bipinnata* Linn. were collected in Kunming, Yunnan, China, in July 20,1994. A voucher specimen is kept in the Herbarium of Kunming Institute of Botany.

Extraction and isolation The dried ground aerial parts of *Bidens bipinnata* Linn. (3.5kg) were extracted with ethanol (4 × 20 L) at room temperature during four weeks to give crude extract (392 g), which was then partitioned with petroleum ether, ethyl acetate and n-butanol successively. The AcOEt part (110 g) was subjected to silica gel column (1.0 kg, 220-300 mesh) eluting with petroleum ether by increasing amount of ethyl acetate to afford six fractions.

After repeating silica gel and reversed phase silica gel as well as Sephadax LH-20 (eluent: MeOH-H_2O) column chromatography, eight compounds: 1(20 mg), 2(100 mg), 3(40 mg), 4(80 mg), 5(700

mg), 6(800 mg), 7(50 mg) and 8 (35 mg) were obtained.

4–O–(6″ –O–p–Coumaroyl–β–D–glucopyranosyl)–p–coumaric acid (1), — $C_{24}H_{24}O_{10}$. White powders; EIMS (70 eV) m / z(%): 309 [M–coumaric acid]$^+$(4), 164[coumaric acid]$^+$(36), 147(56), 119(14), 107(19) and 79(100); ^{13}C and ^1H NMR data see Table 1 and 2 respectively.

4–O–(2″ –O–Acetyl–6″ –O–p–coumaroyl–β–D–glucopyranosyl)–p–coumaric acid (2)—$C_{26}H_{26}O_{11}$, white powders; IRν_{max}^{KBr}cm^{-1}: 3480, 1702,1623, 1595, 1500, 1370, 1248, 1170, 1086, 1045 and 825; UVλ_{max}^{MeOH}nm(log ε):218.5, 223.0, 285.0, 293.0 and 304.0; EIMS (70 eV)m / z(%): 351[M–coumaric acid]$^+$(16), 164[coumaric acid]$^+$(57), 147(100), 119(22), 107(14), 91(25) and 79(15);FABMS (positive ion mode) m / z(%): 515[M+H]$^+$(2); ^{13}C and ^1H NMR data see Table 1 and 2 respectively.

Table 2 ^1H NMR data of 1–3 in CD_3OD

(400 M Hz, δ in ppm with reference to the signal of CD_3OD)

	1	2	3
P–Coumaroyl moiety			
2,2′	7 60(d,8.7)	7.61(D,8.5)	7.59(d,8 5)
6,6′	7.56(d,8.6)	7 57(d,8.5)	7.58(d,8 5)
3,3′	7.34(d,8.7)	7.32(d,8.5)	7.29(d,8.5)
5,5′	7.21(d,8.6)	7.21(d,8 5)	7,20(d,8.5)
7	7.98(d,15.9)	7.94(d,15.9)	7.96(d,16.0)
7′	7.92(d,15 9)	7.91(d,15.9)	7.95(d,16.0)
8	6.75(d,15.9)	6.78(d,15.8)	6.75(d,16.0)
8′	6.63(d,15.9)	6.63(d,15.8)	6.64(d,16.0)
Glucose moiety			
1″	5.66(d,7.2)	5.69(d,8.1)	5.68(m,overlap)
2″	4.24(dd,7.2,9.3)	5.87(dd,8.1,9.0)	5.86(dd,7.7,9.4)
3″	4.35(m,overlap)	4.40(dd,9.0,9.0)	4.48(dd,9.4,9.4)
4″	4.35(m,overlap)	4.23(dd,9.0,9.3)	5 68(m,overlap)
5″	4.35(m,overlap)	4.34(m)	4.40(m)
6″a	5.17(dd,3.2,11.8)	5.13(dd,3.4,11.8)	4.74(dd,2.4,12.0)
6″b	4.92(dd,6.6,11.8)	4.89(dd,6.2,11.8)	4.67(dd,5.9,12.0)
OAc		2.08(s)	2 08(s)
			2.05(s)

4–O–(2″ ,4″ –O–Diacetyl–6″ –O–p–coumaroyl–β–glucopyranosyl)–p–coumaric acid (3)—$C_{28}G_{28}O_{12}$, white powders, mp: 192～194℃, $[\alpha]_D^{25}$–60.1° (C_5D_5N, c 0.362); IRν_{max}^{KBr}cm^{-1}:3440, 1735, 1722, 1700, 1642, 1618, 1520, 1390, 1250, 1190, 1078, 994 and 848; UVλ_{max}^{MeOH}nm (log ε): 216.5(4,38), 284.0(4.53), 289.0(4.52, sh) and 305.0(4.46, sh); EIMS(70 eV)m / z(%): 393[M–coumaric acid]$^+$(8), 164[coumaric acid]$^+$(44), 147(100), 119(19), 107(9), 91(21) and 65 (16); FABMS(negative ion mode):555[M–H]$^-$(100); HR FABMS (negative ion mode) m / z: 556.1632 (calc. 556.1581); ^{13}C and ^1H NMR data see Table 1 and 2 respectively.

(Z)–6–O–(4″ ,6″ –Diacetyl–β–D–glucopyranosyl)–6,7,3′ ,4′ –tetrahydroxyaurone (4)—$C_{25}H_{24}O_{13}$, orange crystals (MeOH–H_2O), mp: 195～197℃; IRν_{max}^{KBr}cm^{-1}: 3220–3360(br.), 1725, 1685, 1835, 1590, 1504, 1360,1270, 1168, 1085 and 1035; UVλ_{max}^{MeOH}nm(log ε): 238.5(4.06, sh), 272.0(4.01), 328.0(4.11), 417.0(4.38); +NaOMe:264.0,285.0(sh), 348.5, 493.0; +$AlCl_3$:250.0(sh), 292. 5, 321.0, 456.5; +$AlCl_3$+HCl: 242.0(sh), 277.5, 323.5, 415.0;+NaOAc:263.5, 358.0, 482.5; +NaOAc+H_3BO_3: 284.5, 327.5, 443.0;EIMS (70 eV)

m / z(%): L286[aglycone]$^+$(100), 258[agl−CO]$^+$(4), 229[acetylglucosyl−H_2O]$^+$(14), 169(16), 153(43), 152(62), 127(26),115(21), FABMS (positive ion mode) m / z(%): 533[M+H]$^+$(7) and 287[agl+H]$^+$(16).

3β−Gluco−β−sitosterol (5)—$C_{35}H_{60}O_6$, white powders; EIMS (70 eV) m / z(%): 414, 396, 382, 329, 255, 213, 145 and 81; ^{1}H NMR (pyridine−d_5) δ:3.96(1H, m, H−3), 5.34(1H, br.s, H−6), 0.65−1.02(18H, m, 6 × CH_3), 5.05(1H, d, J = 7.6, Hz, H−1′), 4.05(1H, dd, J−7.6, 9.0 Hz, H−2′), 4.29(1H, m, H−3′), 4.29(1H, m, H−4′), 3.96(1H, m, H−5′), 4.41(1H, dd, J = 5.2, 11.8 Hz H−6′ b) and 4.58(1H, d, J = 11.8 Hz H−6′ a).

3β−Gluco−stigmasterol (6)—$C_{35}H_{58}O_6$, white powders; EIMS (70 eV) m / z(%): 412, 397, 369, 312, 300, 269, 253, 133, 109, 95, 81, 69 and 55; ^{1}H NMR (pyridine−d_5) δ: 3.96(1H, m, H−3), 5.34(1H, br.s, H−6), 5.20(1H, dd, J = 8.6, 15.0 Hz, H−22), 5.05(1H, m, H−23), 0.66−1.02(18H, m, 6 × CH_3),5.05(1H, m, H−1′), 4.05(1H,dd, J = 7.6, 8.8 Hz H−2′), 4.28(1H, m, H−3′), 4.28(1H, m, H−4′), 3.96(1H, m, H−5′), 4.41(1H, dd, J = 5.2, 11.7 Hz H−6′ b) and 4.56(1H, d, J = 11.7 Hz H−6′ a).

Butanedioic acid (7)— $C_4H_6O_4$, colorless crystals (from MeOH), mp: 167～170℃ ; IRν_{max}^{KBr}cm^{-1}: 3300−2500(br.), 1690(br.), 1405,1300, 1193, 910, 795 and 630; EIMS (70eV) m / z(%): 119[M+H]$^+$(17),100(61), 74(78) and 55(100); ^{13}C NMR (pyridine−d_5) δ: 175.3(C−1) and 30.4(C−2); ^{1}H NMR δ: 12.59(1H,br.s,OH) and 3.00 (each 2H,s,2 × CH_2).

***3β−D−Glucopyranosyloxy−1−hydroxy−6(E)−tetradecene−8,10,12−triyne* (8)**— $C_{20}H_{26}O_7$, brown pwoders; IRν_{max}^{KBr}cm^{-1}: 3340, 2895, 2200, 1605, 1413, 1360, 1158, 1070 and 1010; UVλ_{max}^{MeOH}nm: 231.0,233.5(sh), 240.0, 257.5, 272.0, 288.5, 308.0 and 329.0; EIMS (70 eV) m / z(%): 216[aglycone]$^+$(65), 198(46), 165(49), 153(70), 141(55), 127(100), 115(70), 101(54),85(57), 77(47), 73(95) and 60(78); FABMS (positive ion mode) m / z: 379[M+H]$^+$; ^{13}C NMR (pyridine−d_5) δ: 58.4(C−1), 39.5(C−2), 78.8(C−3), 349(C−4), 29.5(C−5), 152.0(C−6), 108.2(C−7), 60.1(C−8)*, 65.4(C−9)*, 67.4(C−10)*, 73.8(C−11)*, 76.0(C−12)*, 79.4(C−13)*, 4.1(C−14), 104.6(C−1′),75.4(C−2′),78 2(C−3′), 72.5(C−4′), 76.6(C−5′) and 63.5(C−6′); ^{1}H NMR (pyridine−d_5) δ: 1.93(2H,m,H_2−2), 1.68(2H,m,H_2−4), 2.38 and 2.52(each 1H, m, H−5),6.41(1H, dt, J = 7.0, 16.0 Hz, H−6), 5.62(1H, d, J−16.0 Hz H−7), 4.86(1H, d, J = 7.8 Hz, H−1′) and 4.60(1H, dd, J = 2.2,11.4 Hz H−6′ a).

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