Sujith T, Susikumar S, Sunilkumar KN, Radha P, Shakila R, Gopinath P. Detection of adulteration of *Decalepis hamiltonii* Wight & Arn. with *Hemidesmus indicus* (L.) R. Br. by pharmacognostic, molecular DNA fingerprinting by RAPD, chemical and HPTLC studies. Plant Science Today. 2021;8(3):610–620. https://doi.org/10.14719/pst.2021.8.3.1151

Supplementary Tables

Table 1. Macroscopic characters of *D. hamiltonii* and *H.indicus*

Characters	***Decalepis hamiltonii*** (48)	***Hemidesmus indicus*** (48-51)
Part used	Root (Supplementary Fig. 1A, 1B)	Root and Root stock (Supplementary Fig. 2A,2B)
Size and shape	8cm long and upto 2 cm in thick; more or less cylindrical, bent, irregular, few bell shaped	10 cm long, root 0.3 to 2 cm thick, root stock up to 0.5 cm; cylindrical, irregular bent at places, slightly twisted, lateral rootlets wiry
Surface	Externally rough, lenticular, longitudinally wrinkled	Externally rough, irregular, lenticular, longitudinally wrinkles and transversally fissured; root stock shows small buds and central pith
Fracture	Weak porous central wood, short and splintery	Wood strong, short and splintery
Color	Pale yellowish brown to brown, cut surface brownish white	Bark externally dark brownish gray, internally brownish or creamy white; exfoliating cork internally dull purplish brown, wood brownish white.
Odour	Aromatic	Aromatic
Taste	Astringent	Slightly sweet and astringent

Table 2. Details of polymorphism found in *H. indicus* and *D. hamiltonii*

S.No.	**RAPD Primer**	**Sequence 5'-3'**	**No. of Total band**	**No. of Polymorphic bands**
1.	OPE-01	CCCAAGGTCC	4	02
2.	OPH-05	AGTCGTCCCC	6	06
3.	OPK-08	GAACACTGGG	6	04
4.	OPO-09	TCCCACGCAA	4	03
5.	OPAA-09	AGATGGGCAG	10	08
6.	OPC-07	GTCCCGACGA	10	08
7.	OPD-08	GTGTGCCCCA	12	09
8.	OPA-11	CAATCGCCGT	09	07
		TOTAL	61	46

Table 3. Phytochemical screening of *D. hamiltonii* and *H. indicus* root

S.No	**Name of the Experiment**	***Decalepis hamiltonii***	***Hemidesmus indicus***
1	Test for Phenol	-	-
2	Test for Tannin	-	+
3	Test for Flavonoids (Shinoda test)	-	+
4	Test for Triterpenoids (Noller's test)	+	+
5	Test for Proteins (Biuret test)	-	-
6	Test for Glycosides (Anthrone & sulphuric acid test)	+	+
7	Test for Reducing sugar (Fehiling's Test)	+	+
8	Test for Anthraquinones	-	-
9	Test for Quinones	-	+
10	Test for Alkaloids (Dragendroff's test)	+	+
11	Test for Saponins	+	+
12	Test for Cardiac glycoside (Keller-Killani Test)	+	+
13	Test for Steroids (Lieberman Burchard Test)	-	+
14	Test for Coumarin	-	+
15	Test for Acids	-	-

Note: + means presence; - means absence

Table 4. R_f values and color spots of *D. hamiltonii* and *H. indicus* root

Hexane extracts											
DH		**HI**		**DH**		**HI**		**DH**		**HI**	
R_f Value	**Color**	**R_f Value**	**Color**	**R_f Value**	**Color**	**R_f Value**	**Color**	**R_f Value**	**Color**	**R_f Value**	**Color**
0.06	Green	0.06	Green	0.03	Fluorescent Blue	0.03	Fluorescent Blue	0.11	Violet	0.11	Violet
0.21	Green	0.21	Green	0.11	Fluorescent Blue	0.12	Fluorescent Blue	0.16	Violet	0.16	Violet
0.34	Green	0.34	Green	0.17	Blue	0.18	Fluorescent Blue	0.20	Violet	0.22	Violet
0.78	**Green**	-	-	0.22	Blue	0.23	Blue	0.35	Violet	0.36	Violet
0.90	Green	0.90	Green	0.39	Blue	0.40	Blue	0.61	Violet	0.61	Violet
-	-	-	-	-	-	-	-	0.72	Violet	0.73	Violet
-	-	-	-	-	-	-	-	-	-	**0.88**	**Brown**
-	-	-	-	-	-	-	-	0.91	Violet	0.91	Violet
Chloroform extracts											
0.15	Green	0.14	Green	0.11	Blue	0.11	Blue	0.04	Violet	0.03	Violet
0.19	**Green**	-	-	0.14	Fluorescent Blue	0.14	Blue	0.08	Blue	0.06	Blue
-	-	**0.28**	**Green**	0.16	Blue	0.17	Blue	0.14	Ash	0.11	Ash
0.33	**Green**	-	-	0.19	Fluorescent Blue	0.20	Blue	**0.20**	**Pink**	-	-
0.75	Green	0.76	Green	**0.28**	**Blue**	-	-	0.38	Violet	0.39	Violet
-	-	**0.81**	**Green**	**0.33**	**Ash**	-	-	**0.45**	**Blue**	-	-
-	-	-	-	**0.36**	**Brown**	-	-	0.50	Violet	0.50	Violet
-	-	-	-	**0.39**	**Ash**	-	-	0.73	Violet	0.74	Violet
-	-	-	-	0.49	Fluorescent Green	0.49	Light Green	-	-	**0.81**	**Brown**
-	-	-	-	**0.52**	**Blue**	-	-	0.83	Violet	0.84	Violet

-	-	-	-	**0.61**	**Light Green**	-	-	-	-	-	-
-	-	-	-	0.73	Blue	0.73	Blue	-	-	-	-
Ethanol extracts											
0.06	**Green**	-	-	0.03	Sky Blue	0.03	Sky Blue	0.02	Ash	0.03	Violet
0.08	Green	0.08	Green	0.05	Sky Blue	0.04	Blue	0.07	Ash	0.07	Ash
0.12	Green	0.11	Green	**0.07**	**Ash**	-	-	0.11	Ash	0.11	Violet
0.15	Green	0.14	Green	**0.16**	**Blue**	-	-	**0.19**	**Violet**	-	-
0.24	Green	0.25	Green	**0.18**	**Blue**	-	-	0.25	Yellowish Green	0.24	Green
0.33	**Green**	-	-	0.28	Fluores cent Blue	0.30	Fluores cent Blue	**0.35**	**Violet**	-	-
0.43	**Green**	-	-	0.32	Blue	-	-	0.46	Brown	0.44	Ash
0.82	**Green**	-	-	0.36	Light Blue	0.35	Blue	-	-	**0.55**	**Light Pink**
-	-	-	-	**0.47**	**Ash**	-	-	**0.58**	**Pink**	-	-
-	-	-	-	**0.52**	**Ash**	-	-	**0.59**	**Yellow**	-	-
-	-	-	-	**0.56**	**Ash**	-	-	0.82	Pink	0.80	Pink
-	-	-	-	0.61	Blue	0.62	Blue	0.88	Pink	0.85	Pink
-	-	-	-	**0.70**	**Sky Blue**	-	-	-	-	-	-
-	-	-	-	0.77	Blue	0.78	Blue	-	-	-	-

Supplementary Figures

Fig. 1. Photograph of *D. Hamiltonii* Wight & Arn. **A.** Dried roots, **B.** powder.

Fig. 2. Photograph of *H. indicus* (L.) R.Br.ex Schult. **A.** Dried roots, **B.** Powder.

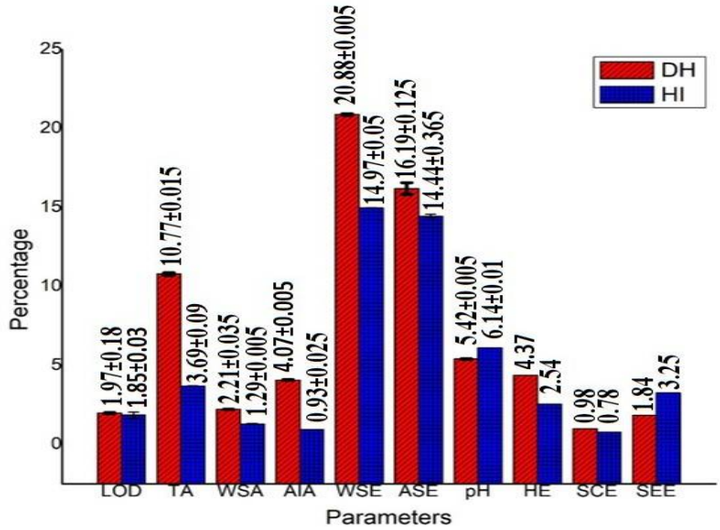
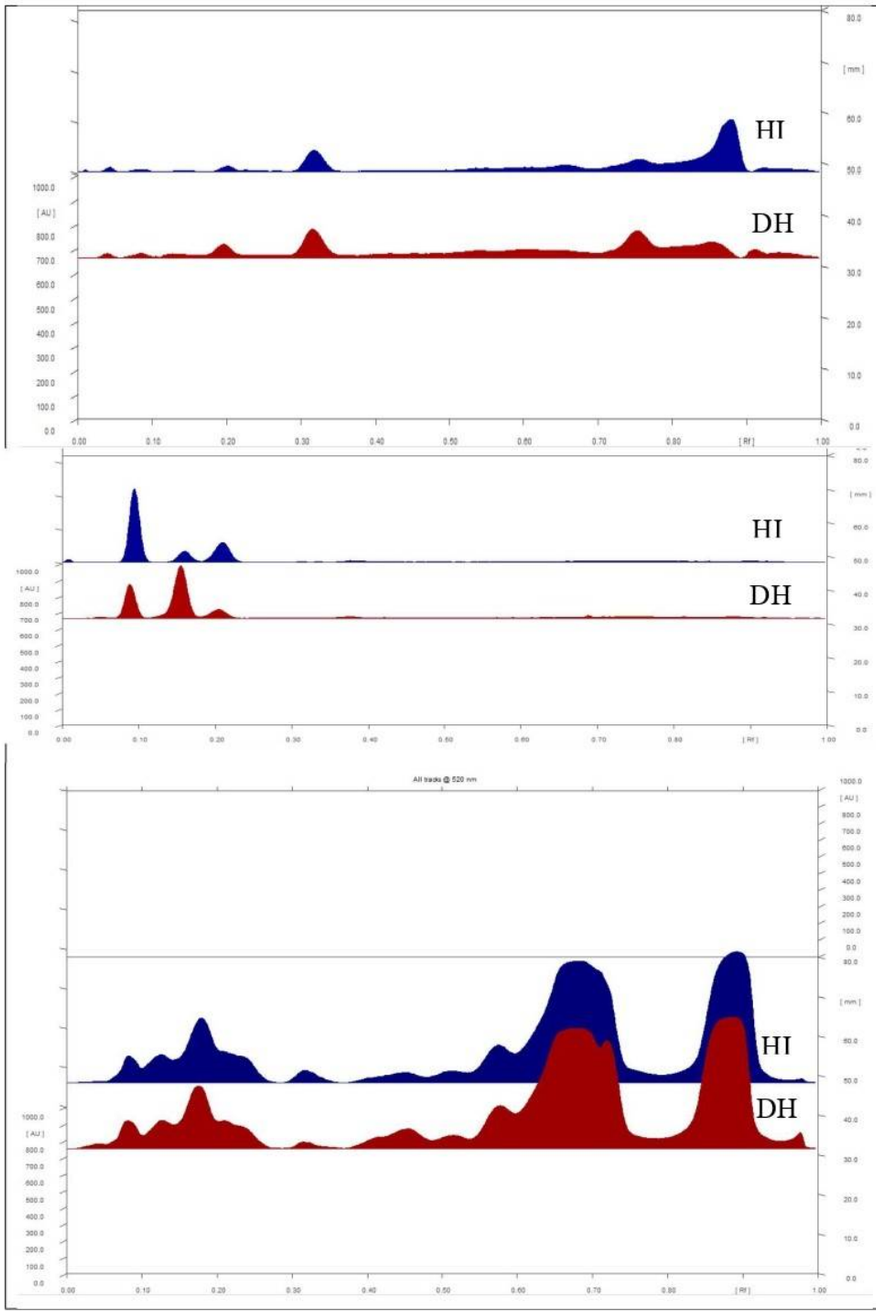


Fig. 3. Physicochemical constants of *D. hamiltonii* and *H. indicus* root LOD: Loss on Drying, TA: Total Ash, WSA: Water Soluble Ash, AIA: Acid Insoluble Ash, WSE: Water Soluble Extractives, ASE: Alcohol Soluble Extractives, HE: Hexane extractive, SCE: Successive Chloroform Extractive, SEE: Successive Ethanol Extractive.

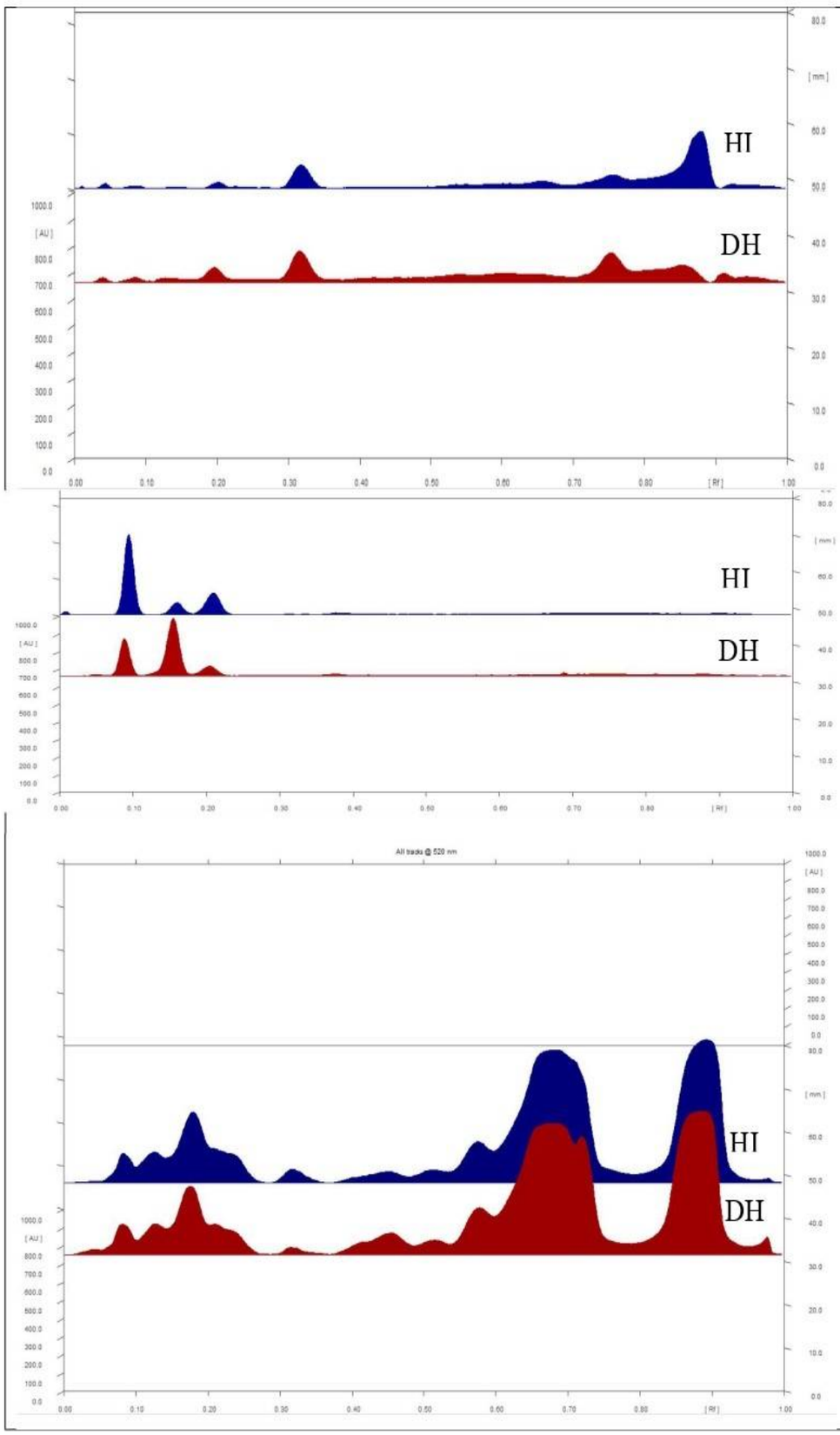


Track	Max Position	Area %
2	0.04 Rf	1.34 %
2	0.09 Rf	2.23 %
2	0.13 Rf	2.86 %
2	0.20 Rf	9.22 %
2	0.32 Rf	22.47 %
2	0.54 Rf	6.63 %
2	0.75 Rf	27.05 %
2	0.85 Rf	19.35 %
2	0.91 Rf	4.21 %
2	0.94 Rf	4.65 %
3	0.04 Rf	1.29 %
3	0.20 Rf	2.83 %
3	0.32 Rf	14.71 %
3	0.66 Rf	7.46 %
3	0.75 Rf	16.05 %
3	0.88 Rf	56.01 %
3	0.92 Rf	1.65 %

Track	Max Position	Area %
2	0.09 Rf	29.15 %
2	0.16 Rf	57.77 %
2	0.20 Rf	11.32 %
2	0.69 Rf	1.76 %
3	0.01 Rf	1.28 %
3	0.09 Rf	61.61 %
3	0.16 Rf	11.93 %
3	0.21 Rf	25.19 %

Track	Max Position	Area %
2	0.04 Rf	0.34 %
2	0.08 Rf	2.56 %
2	0.13 Rf	2.80 %
2	0.17 Rf	7.80 %
2	0.21 Rf	3.58 %
2	0.31 Rf	0.61 %
2	0.46 Rf	3.88 %
2	0.52 Rf	1.68 %
2	0.58 Rf	5.62 %
2	0.68 Rf	31.67 %
2	0.72 Rf	9.75 %
2	0.89 Rf	28.75 %
2	0.98 Rf	0.96 %
3	0.08 Rf	2.34 %
3	0.13 Rf	3.09 %
3	0.18 Rf	13.33 %
3	0.32 Rf	1.35 %
3	0.45 Rf	2.05 %
3	0.51 Rf	1.69 %
3	0.57 Rf	5.32 %
3	0.68 Rf	42.03 %
3	0.89 Rf	28.58 %
3	0.98 Rf	0.21 %

Fig. 4. HPTLC 3D chromatogram and peak table of hexane extracts.

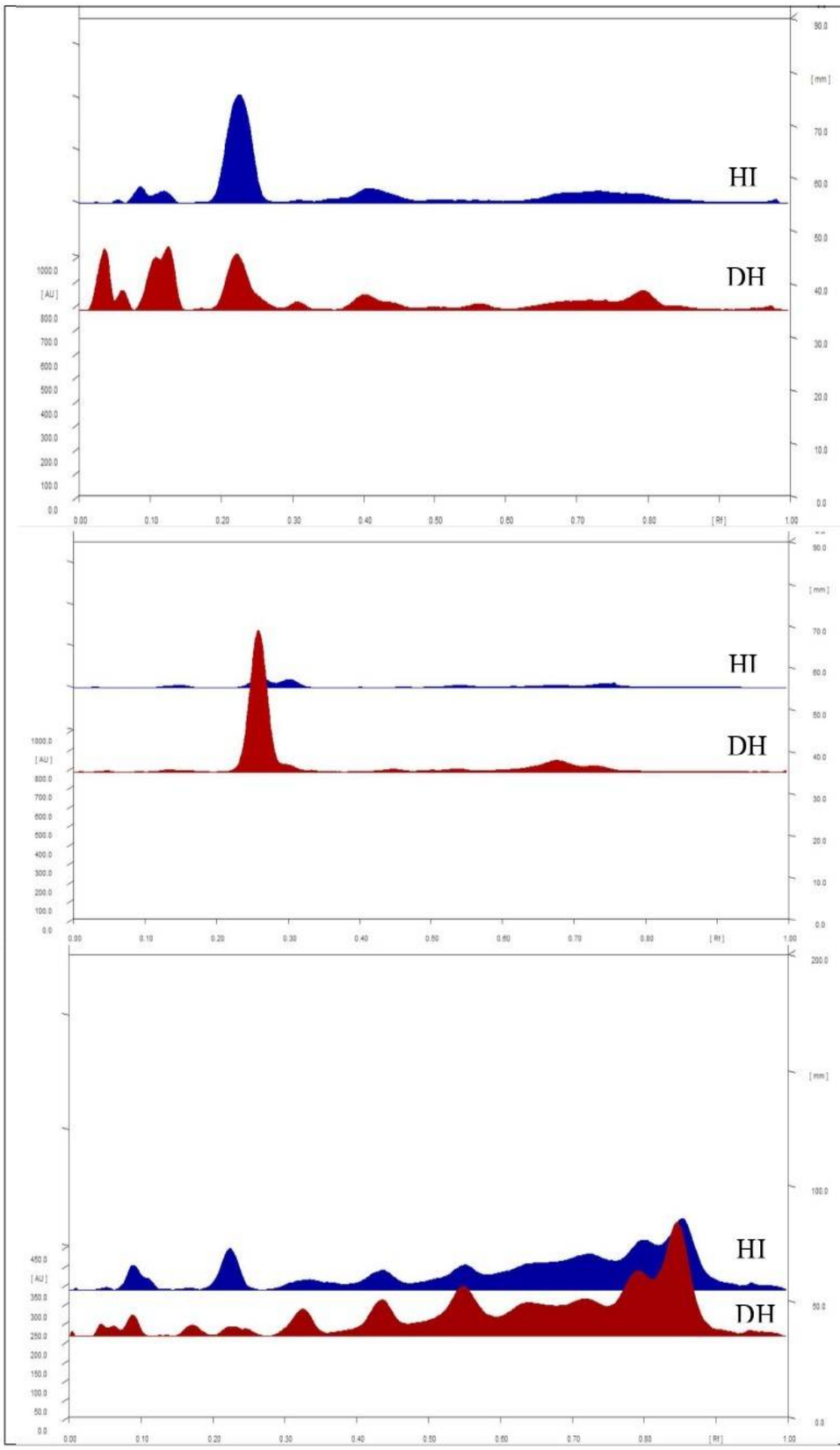


Track	Max Position	Area %
2	0.04 Rf	1.34 %
2	0.09 Rf	2.23 %
2	0.13 Rf	2.86 %
2	0.20 Rf	9.22 %
2	0.32 Rf	22.47 %
2	0.54 Rf	6.63 %
2	0.75 Rf	27.05 %
2	0.85 Rf	19.35 %
2	0.91 Rf	4.21 %
2	0.94 Rf	4.65 %
3	0.04 Rf	1.29 %
3	0.20 Rf	2.83 %
3	0.32 Rf	14.71 %
3	0.66 Rf	7.46 %
3	0.75 Rf	16.05 %
3	0.88 Rf	56.01 %
3	0.92 Rf	1.65 %

Track	Max Position	Area %
2	0.09 Rf	29.15 %
2	0.16 Rf	57.77 %
2	0.20 Rf	11.32 %
2	0.69 Rf	1.76 %
3	0.01 Rf	1.28 %
3	0.09 Rf	61.61 %
3	0.16 Rf	11.93 %
3	0.21 Rf	25.19 %

Track	Max Position	Area %
2	0.04 Rf	0.34 %
2	0.08 Rf	2.56 %
2	0.13 Rf	2.80 %
2	0.17 Rf	7.80 %
2	0.21 Rf	3.58 %
2	0.31 Rf	0.61 %
2	0.46 Rf	3.88 %
2	0.52 Rf	1.68 %
2	0.58 Rf	5.62 %
2	0.68 Rf	31.67 %
2	0.72 Rf	9.75 %
2	0.89 Rf	28.75 %
2	0.98 Rf	0.96 %
3	0.08 Rf	2.34 %
3	0.13 Rf	3.09 %
3	0.18 Rf	13.33 %
3	0.32 Rf	1.35 %
3	0.45 Rf	2.05 %
3	0.51 Rf	1.69 %
3	0.57 Rf	5.32 %
3	0.68 Rf	42.03 %
3	0.89 Rf	28.58 %
3	0.98 Rf	0.21 %

Fig. 5. HPTLC 3D chromatogram and peak table of chloroform extracts.



Track	Max Position	Area %
2	0.04 Rf	13.78 %
2	0.06 Rf	3.51 %
2	0.11 Rf	12.58 %
2	0.13 Rf	14.70 %
2	0.22 Rf	24.56 %
2	0.31 Rf	2.20 %
2	0.40 Rf	8.97 %
2	0.56 Rf	2.70 %
2	0.69 Rf	4.69 %
2	0.79 Rf	11.67 %
2	0.97 Rf	0.63 %
3	0.05 Rf	0.53 %
3	0.09 Rf	4.49 %
3	0.12 Rf	4.03 %
3	0.22 Rf	56.70 %
3	0.40 Rf	12.51 %
3	0.69 Rf	6.20 %
3	0.73 Rf	7.70 %
3	0.77 Rf	7.02 %
3	0.98 Rf	0.83 %

Track	Max Position	Area %
2	0.13 Rf	1.00 %
2	0.26 Rf	77.17 %
2	0.45 Rf	1.62 %
2	0.53 Rf	2.05 %
2	0.67 Rf	13.88 %
2	0.73 Rf	4.28 %
3	0.15 Rf	10.79 %
3	0.26 Rf	30.47 %
3	0.30 Rf	24.34 %
3	0.54 Rf	10.70 %
3	0.74 Rf	14.80 %
3	0.76 Rf	8.90 %

Track	Max Position	Area %
2	0.04 Rf	0.75 %
2	0.09 Rf	2.08 %
2	0.17 Rf	1.35 %
2	0.22 Rf	1.82 %
2	0.33 Rf	4.75 %
2	0.44 Rf	8.65 %
2	0.55 Rf	16.03 %
2	0.64 Rf	11.85 %
2	0.72 Rf	9.73 %
2	0.79 Rf	15.83 %
2	0.84 Rf	26.07 %
2	0.95 Rf	1.09 %
3	0.09 Rf	4.78 %
3	0.22 Rf	8.55 %
3	0.33 Rf	4.46 %
3	0.44 Rf	7.00 %
3	0.55 Rf	9.76 %
3	0.72 Rf	21.62 %
3	0.80 Rf	17.31 %
3	0.85 Rf	25.08 %
3	0.95 Rf	1.43 %

Fig. 6. HPTLC 3D chromatogram and peak table of ethanol extracts.