APPENDIX – III.

CHROMATOGRAM

Dye: Food dye, Naphthol quinone, Azo dye

Hormons: Pregnandiol

Ginseng Saponin

Liquid Crystal

Capsaicine

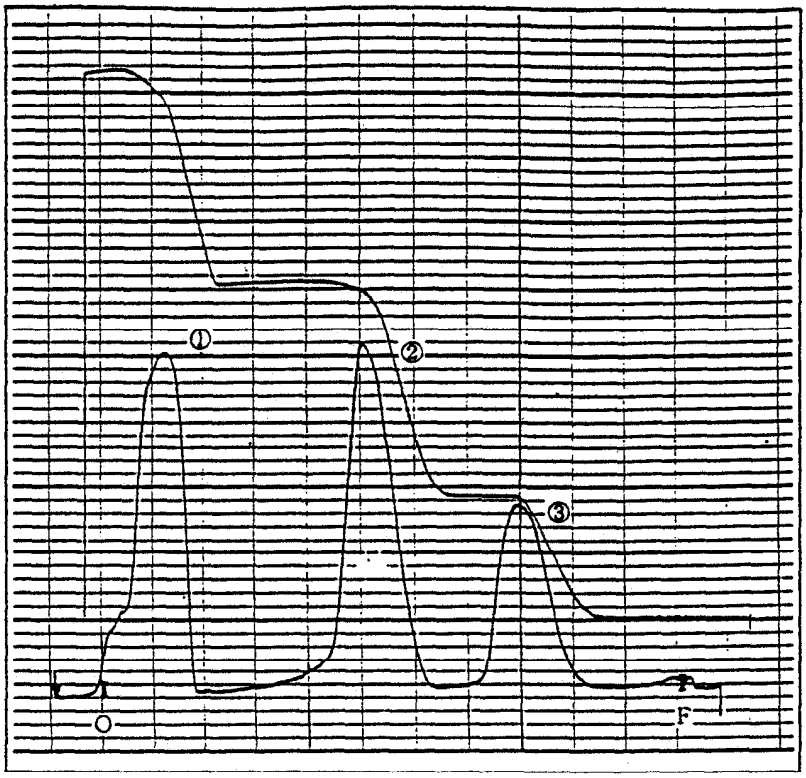
Cosmetic Cream

Rubber antioxidant

Polymer

2.2.1

● 水溶性食用色素　　Food Dye



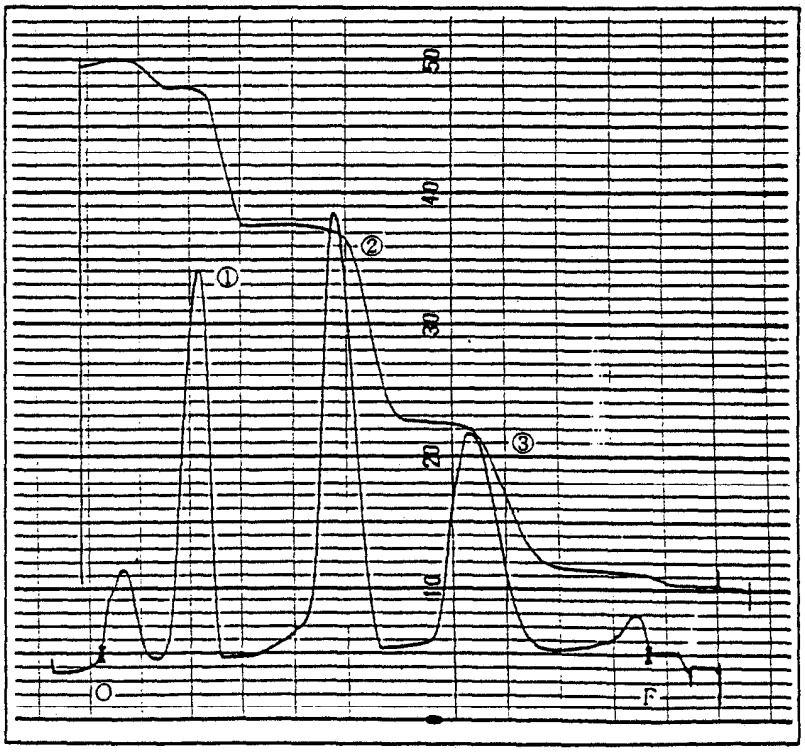
SAMPLE :

①Tartrazine　10.7μg
②Acid Red　9.0μg
③Phloxine B　9.1μg

CONDITIONS :

Stationary phase : CHROMAROD－S
Mobile phase :
Ethyl Acetate : MeOH :
70 : 20 :
28% NH_4OH : H_2O
10 : 10
Gas flow : H_2 160ml／min
Air 2000ml／min
Scanning speed : 32sec／scan
Chart speed : 240mm／min

● 水溶性食用色素　　Food Dye



SAMPLE :

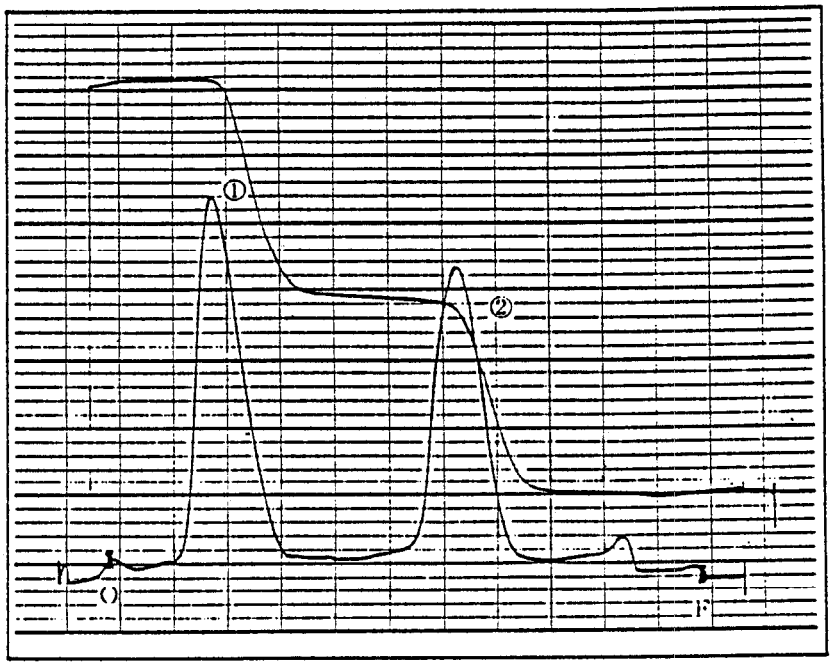
①New Coccine　7.0μg
②Acid Red　9.1μg
③Rose Bengal　10.0μg

CONDITIONS :

Stationary phase : CHROMAROD－S
Mobile phase :
Ethyl Acetate : MeOH :
70 : 20 :
28% NH_4OH : H_2O
10 : 10
Gas flow : H_2 160ml／min
Air 2000ml／min
Scanning speed : 32sec／scan
Chart speed : 240mm／min

2. 2. 1

● 水溶性食用色素　　Food Dye



SAMPLE :

①Fast Green FCF　9.6μg

②Acid Violet 6B　8.9μg

CONDITIONS :

Stationary phase : CHROMAROD－S

Mobile phase :

Ethyl Acetate : MeOH :

70 : 20 :

28% NH_4OH : H_2O

10 : 10

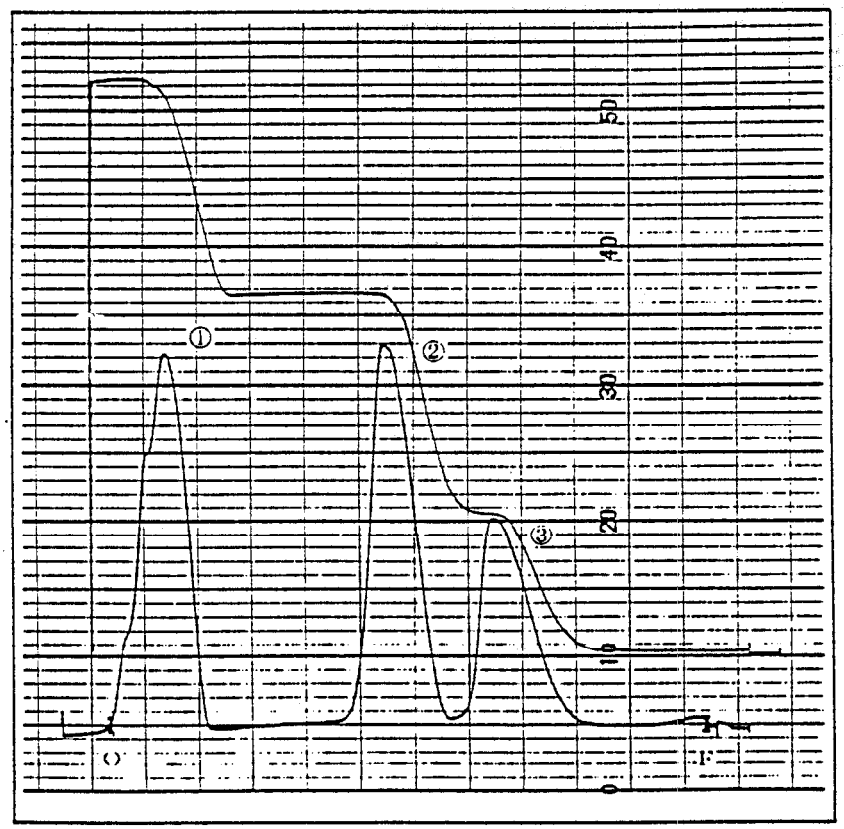
Gas flow : H_2 160ml／min

Air 2000ml／min

Scanning speed : 32sec／scan

Chart speed : 240mm／min

● 水溶性食用色素　　Food Dye



SAMPLE :

①Amaranth　7.8μg

②Acid Red　7.4μg

③Erythrosine　9.5μg

CONDITIONS :

Stationary phase : CHROMAROD－S

Mobile phase :

Ethyl Acetate : MeOH :

70 : 20 :

28% NH_4OH : H_2O

10 : 10

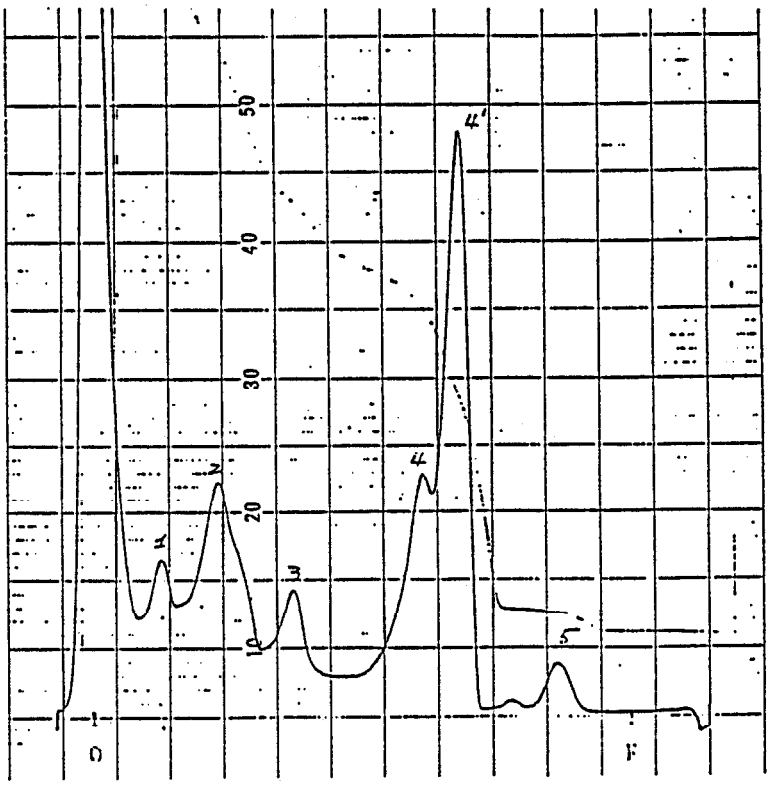
Gas flow : H_2 160ml／min

Air 2000ml／min

Scanning speed : 32sec／scan

Chart speed : 240mm／min

Dye



Sample: Naphthol quinone

CONDITIONS:

Stationary phase: CHROMAROD

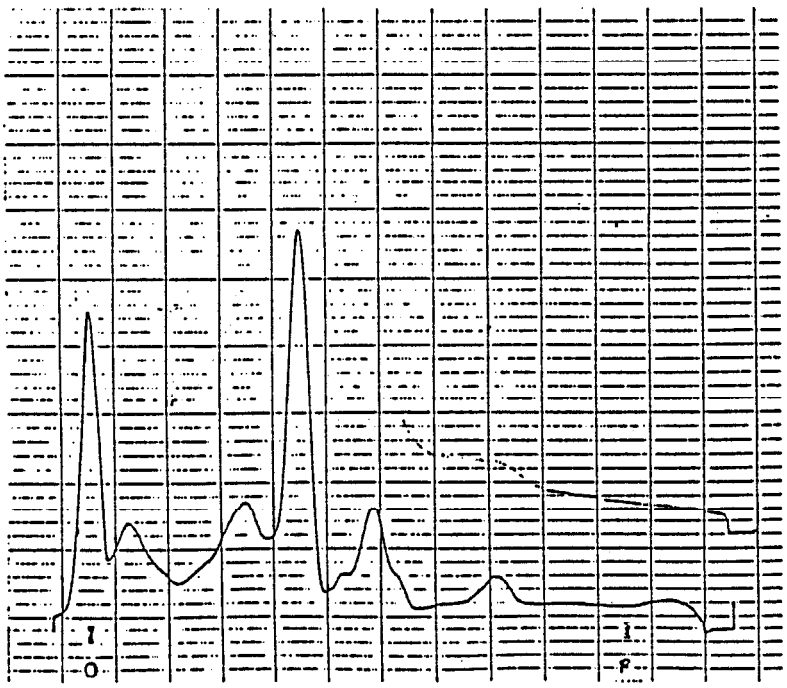
Mobile phase:

Chloroform:Benzene 7:3

Gas flow: H_2 160ml/min

Air 2000ml/min

Scanning speed: 30sec/scan



Sample: Azo dye

CONDITIONS:

Stationary phase: CHROMAROD

Mobile phase:

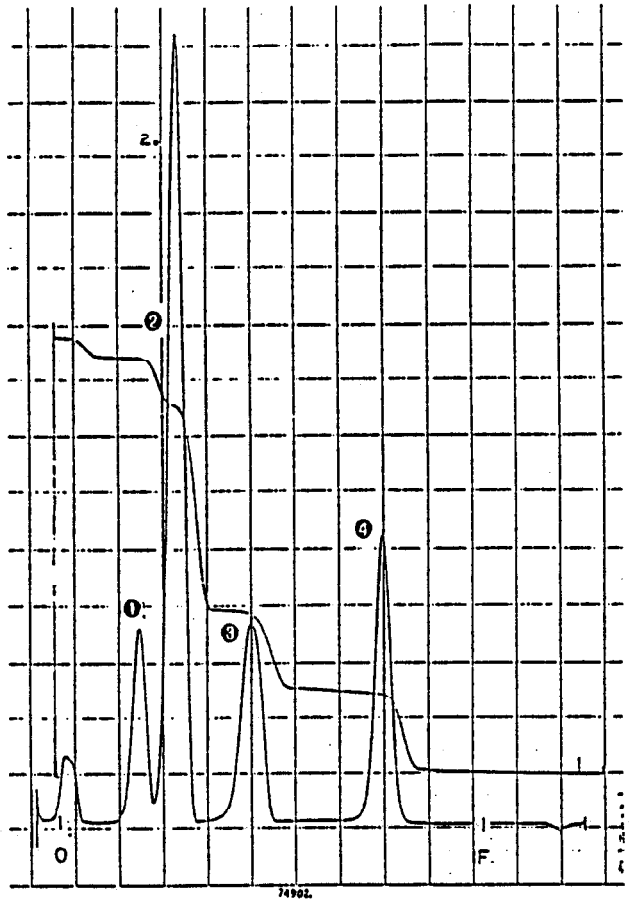
Ethyl acetate:Methanol:Chloroform

15 : 6 : 30

Gas flow: H_2 160ml/min

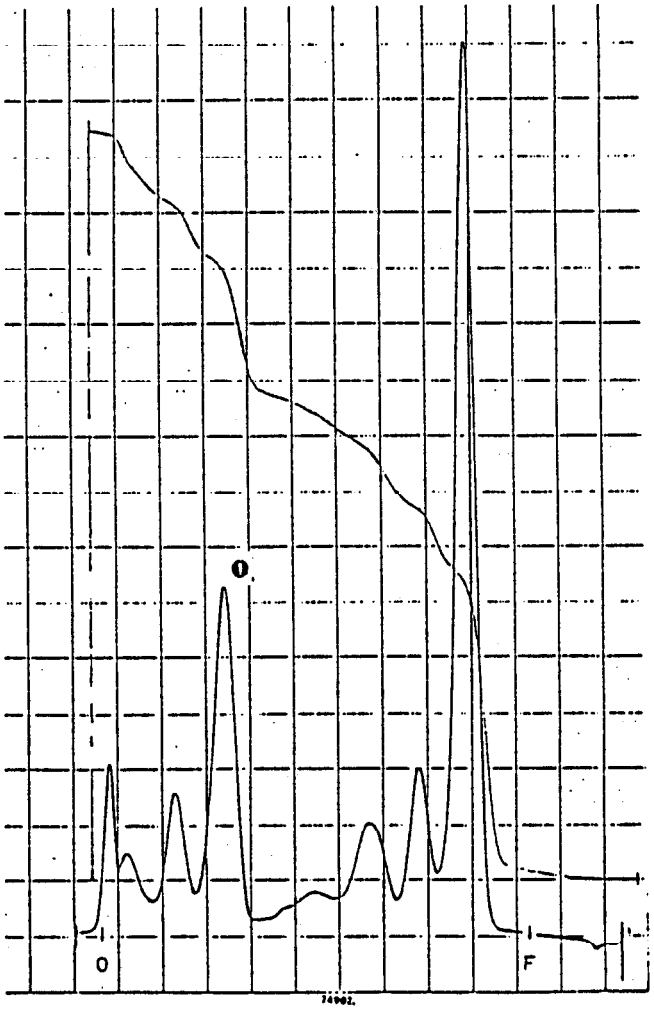
Air 2000ml/min

Scanning speed: 30sec/scan



Sample: Liquid Crystal
Stationary phase: CHROMAROD-SII
Mobile phase:
Cyclohexane:Toluene
1 : 1

Peak 1. Cholesteryl acetate
2. Cholesteryl propyonate
3. Cholesteryl nonanoate
4. Cholesteryl chloride



Sample: Capsaicine Extract
An ingredient found in chill peppers ,red peppers and green paprika.

Stationary phase: CHROMAROD-SII
Mobile phase:
Benzene:Ethyl ether:Acetic acid
90 : 10 : 1

Separation of Cosmetic Cream

Preparation of Test Solution.

Cream

H_2O Added | $CHCl_3$ Added

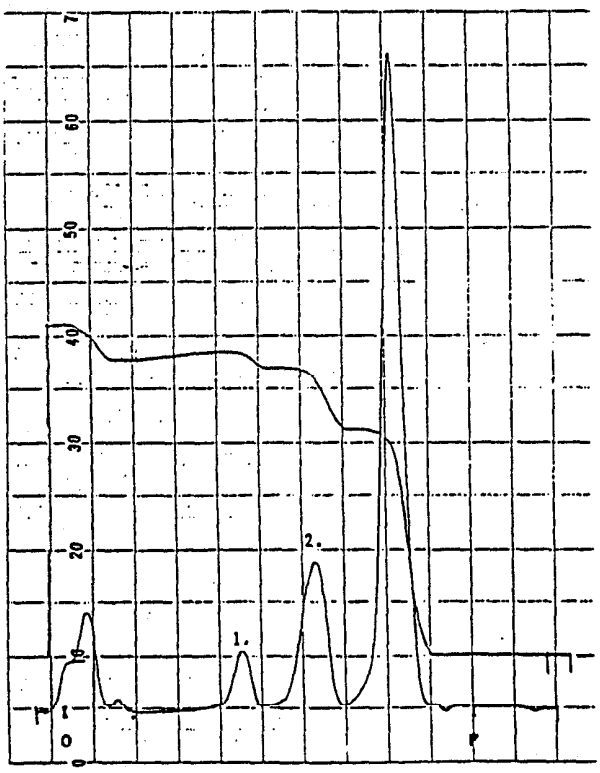
Water Solbule Substance. — Evaporation — H_2O Added — Test Solution

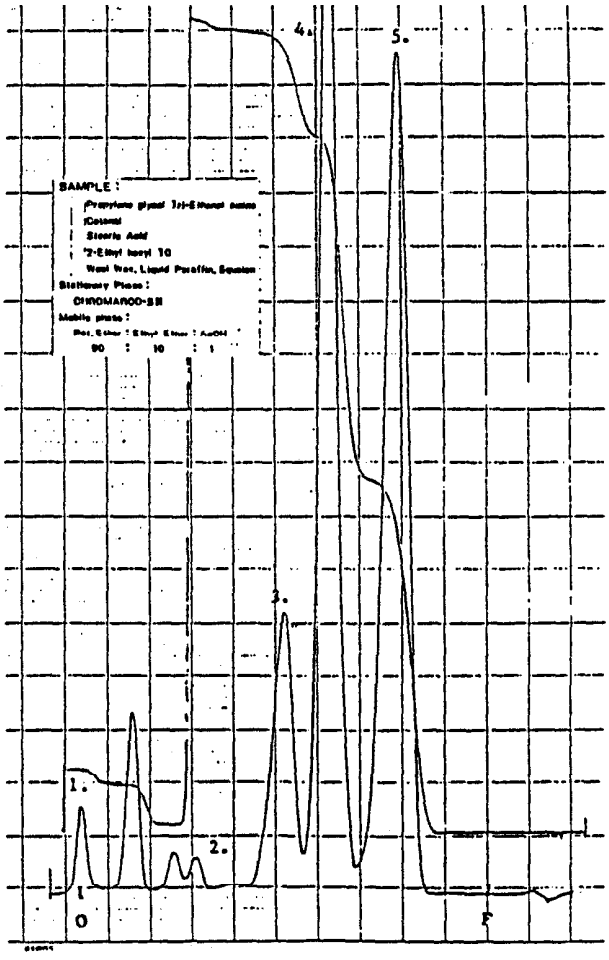
Oil Soluble Substance. — Evaporation — $CHCl_3$ Added — Test Solution

Mobile phase:
$CHCl_3$:MeOH:HCOOH
80 : 20 : 0.5
Peak 1.Glycerin,
2. Propylene glycol

Mobile phase:
Pet.ether:Ethyl ether:AcOH
90 : 10 : 1
Peak 1.Propylene glycol
Tri-Ethanol amine
2.Cethanol, 3. Stearic acid
4. 2-Ethyl hexyl TG
5. Wool Wax,Liquid Parafine
and Squalan

Stationary phase: CHROMAROD-SII





ANALYSIS OF ACRYLIC RESIN COATINGS

Samples:

Acrylic resin for coating (No. A and No. B)

Molecular weight: 10,000 - 20,000

The pigment dispersibility of Sample A is larger than that of Sample B, but no appreciable difference in IR- and NMR- spectra and the like can be observed between either sample.

Procedure and Results of Analysis:

Both Samples No. A and No. B were developed with the same solvents and were investigated in order to determine whether any distinction in their chromatographic profile could be observed or not.

When both samples are developed in a solvent system of ethyl acetate-formic acid on Chromarod-A, components which move with the solvent front are naturally increased within a greater concentration of formic acid but, as can be seen from the charts, components which move at a lower concentration of formic acid, are more in evidence in Sample No. A than in Sample No. B (see Charts).

This illustrates that samples which cannot be distinguished from each other by optical methods can be distinguished by the IATROSCAN method relatively easily.

Further, the presented data may be helpful in the selection of eluates for separation analyses of these samples such as by column chromatography methods and the like.

Conditions:

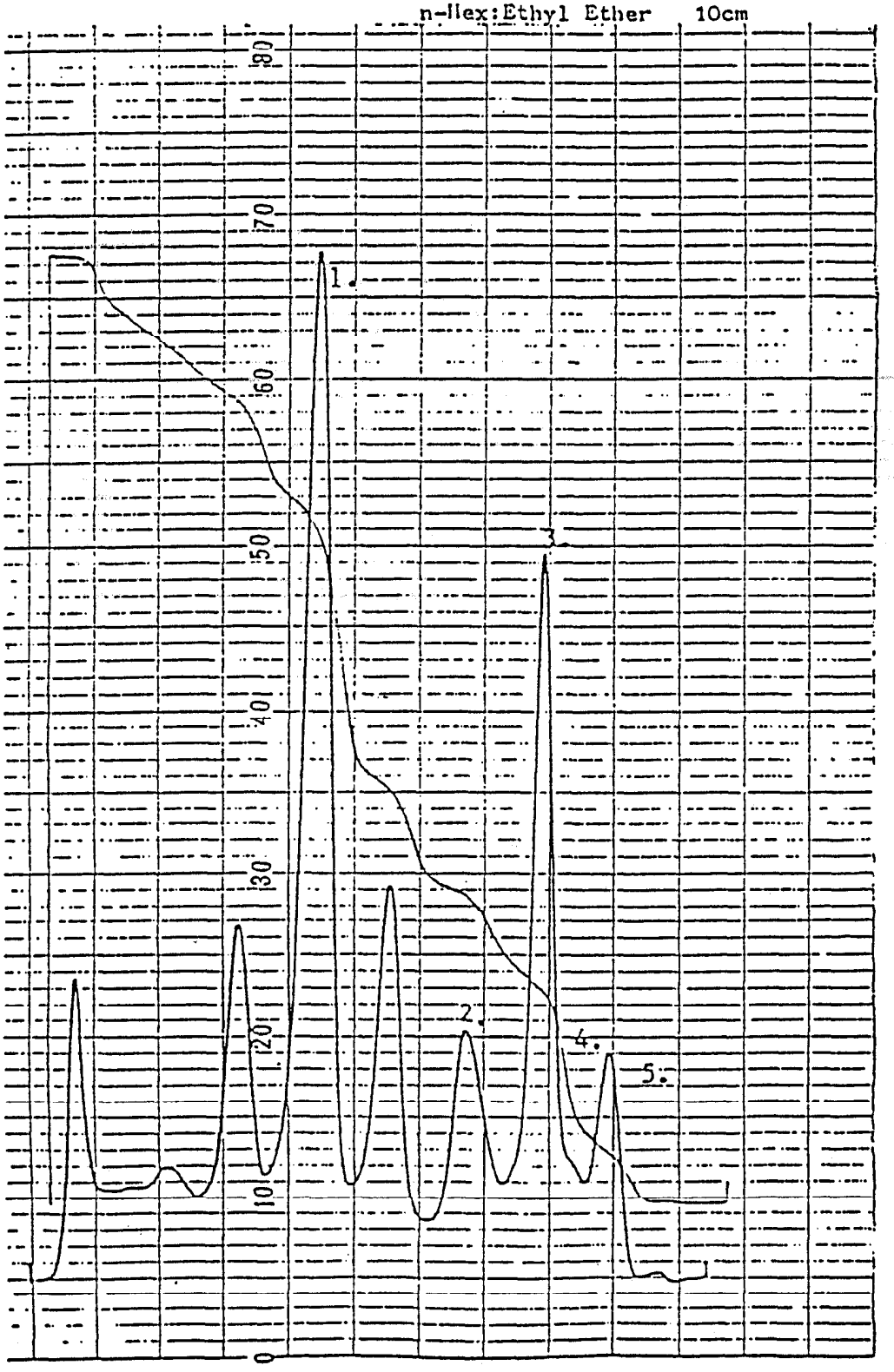
Sample:	Acrylic Resin					
Sample Size:	20 mg/ml					
Chart No:	1.	2.	3.	4.	5.	6.
Sample No:	A	B	A	B	A	B
Mobile Phase						
Ethyl Acetate	100		600		300	
:	:		:		:	
Formic Acid	0		1		1	
Stationary Phase:	CHROMAROD-A					
Gas Flow:	H_2- 160 ml/min Air 2.0 l/min					
Scanning Speed:	30 sec/scan					
Chart Speed:	240 mm/min					
Recorder Range (Chromatogram):	100 mV					
Recorder Range (Integrator):	200 mV					

RUBBER ANTIOXIDANT

Separation on Chromarod SII

3.32mg/ml	1. Epoxidised Soya Oil
0.46mg/ml	2. Tin mercaptan stabiliser complex
2.16mg/ml	3. Butylated reaction product of p-cresol and dicyclopentadiene
0.2 mg/ml	4. 2,5-Di t amylhydroquinone
0.66mg/ml	5. Tris(nonylphenyl)phosphite

Two stage development: n-Hexane:Acetone 4cm
n-Hex:Ethyl Ether 10cm



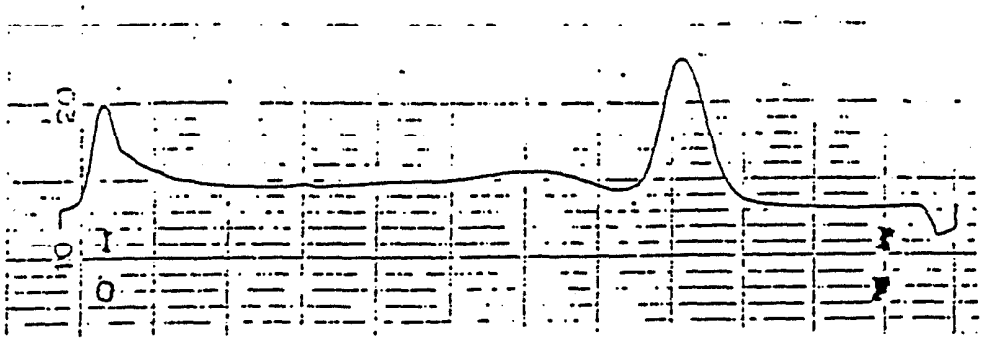


CHART NO. 4 SAMPLE B

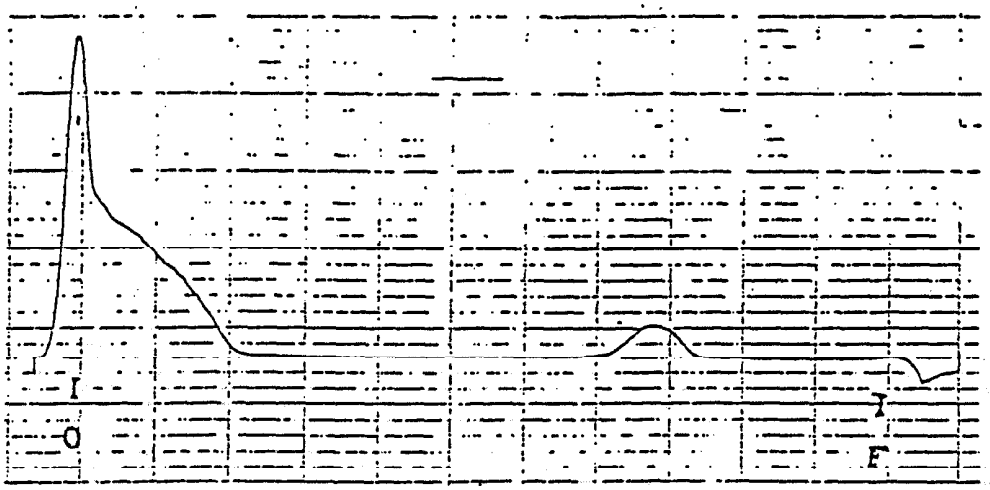


CHART NO. 5 SAMPLE A

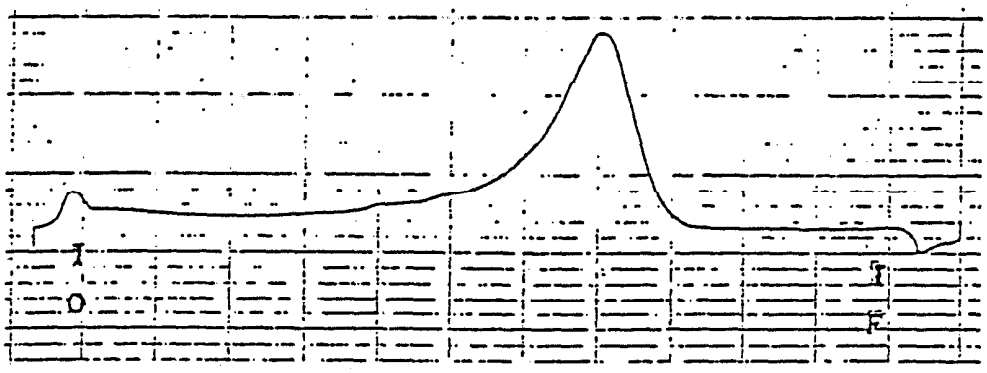


CHART NO. 6 SAMPLE B

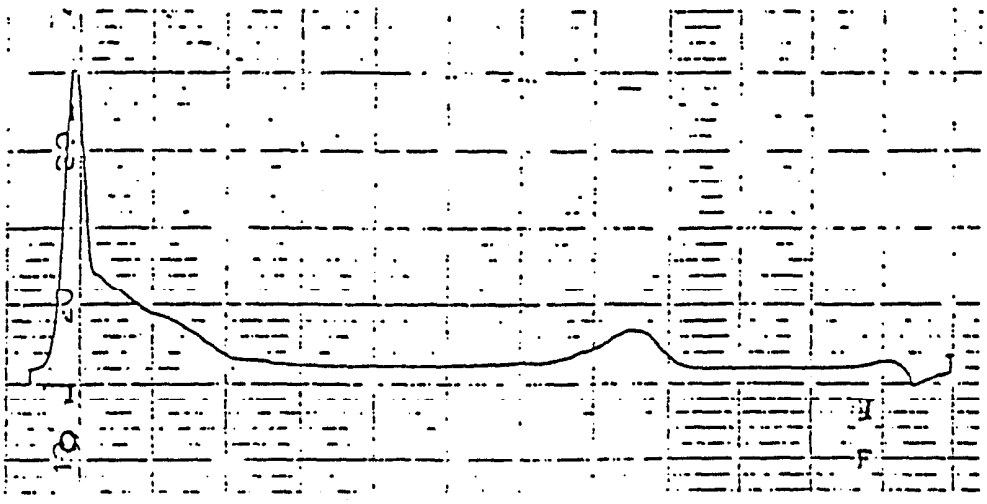


CHART NO. 1 SAMPLE A

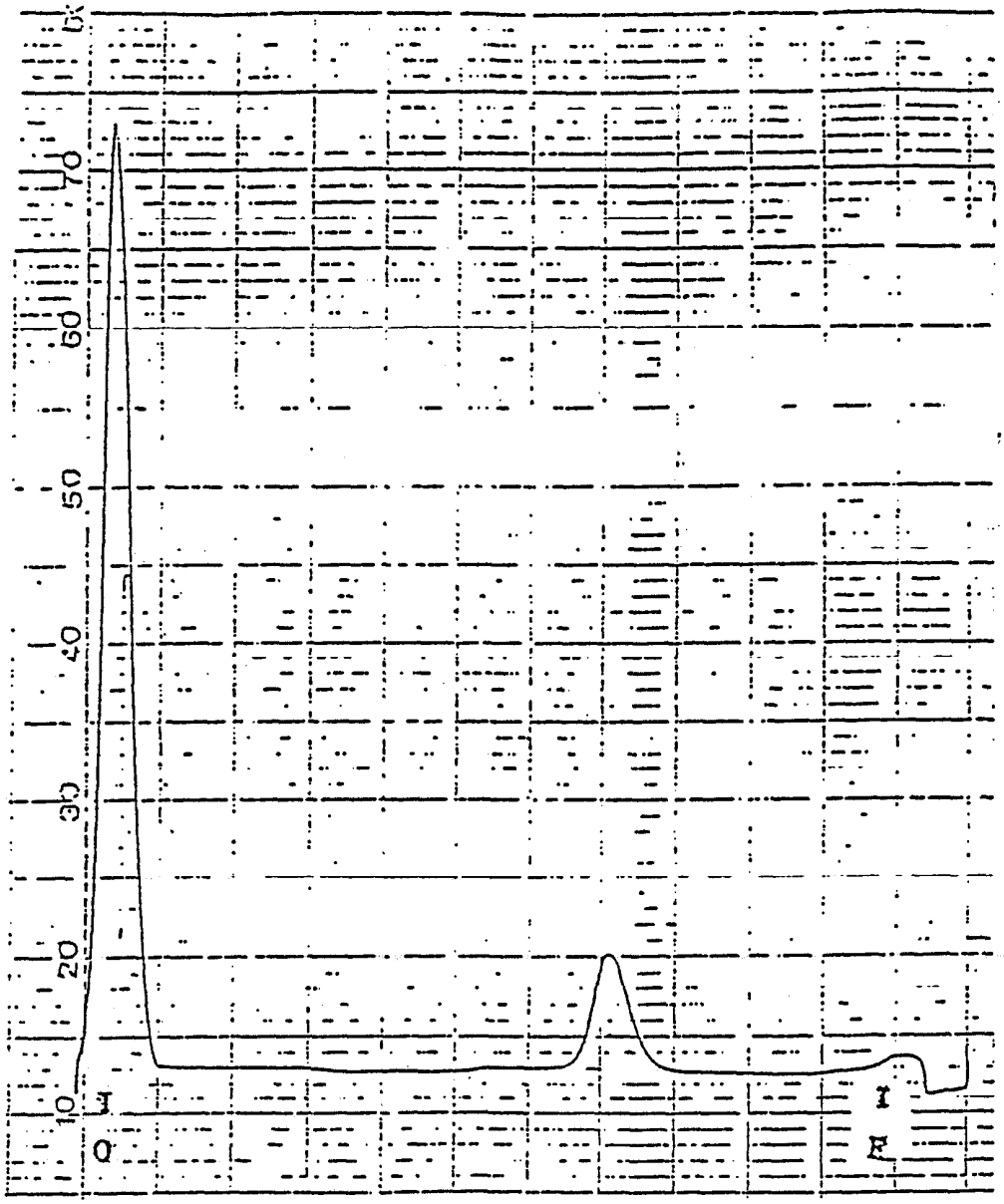
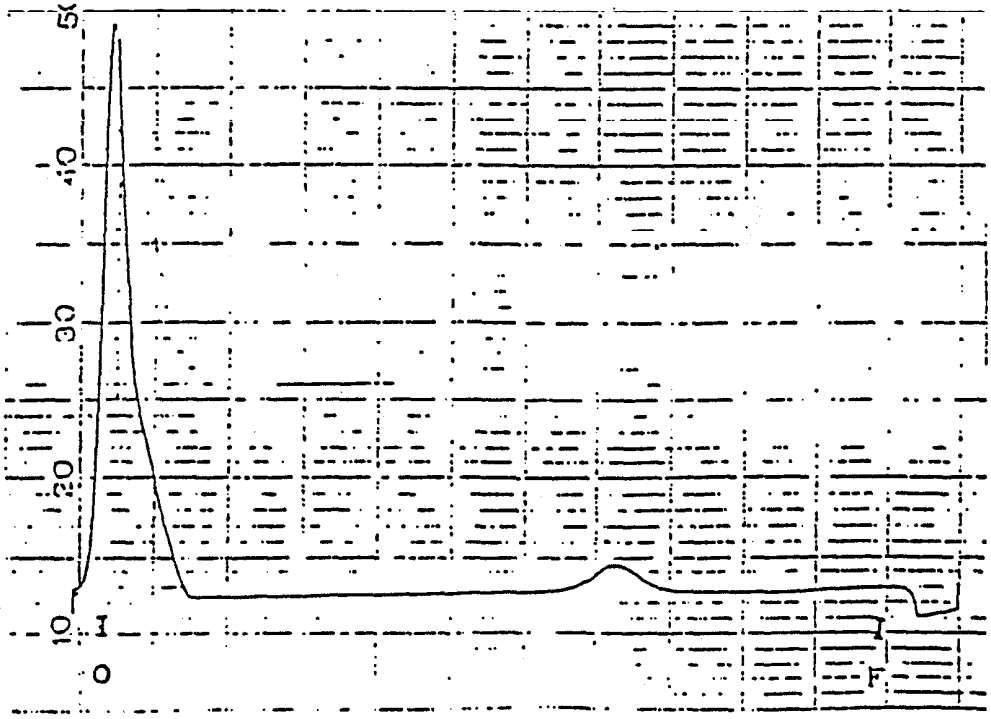
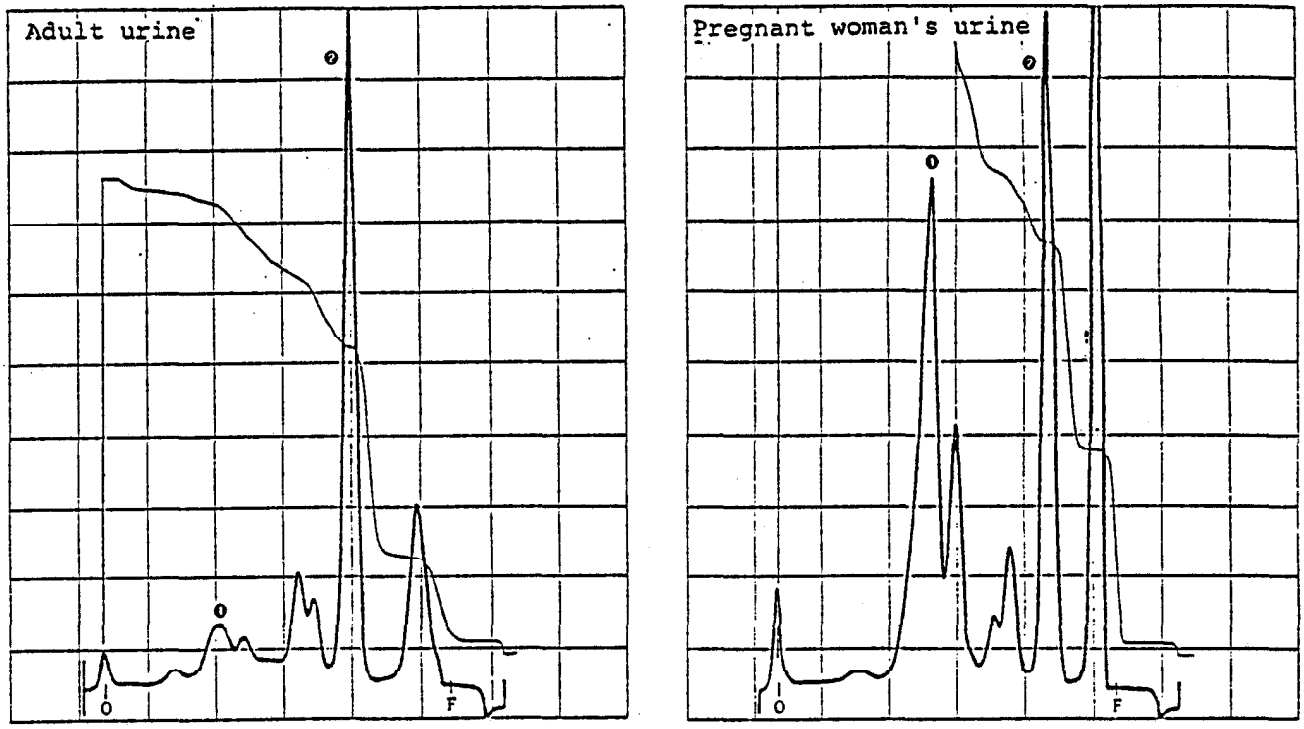


CHART NO. 2 SAMPLE B

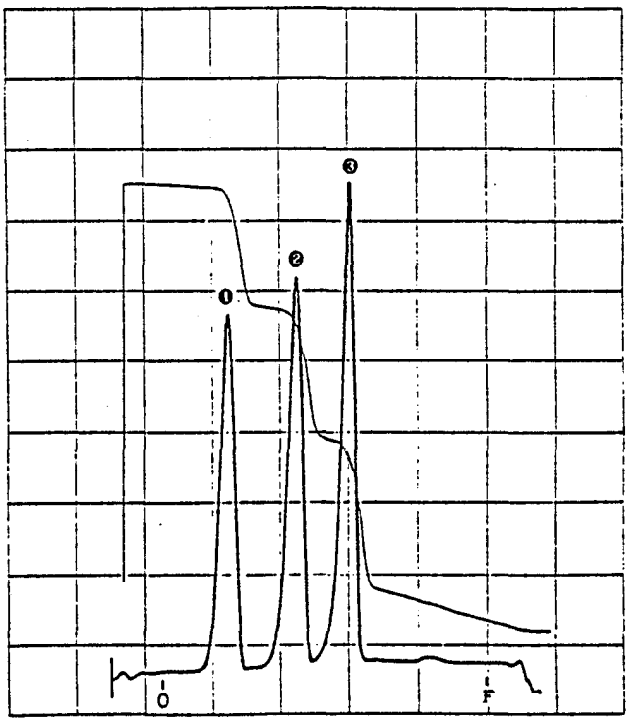


HORMONES



Components: 1. Pregnandiol 2. Free cholesterol(internal standard)

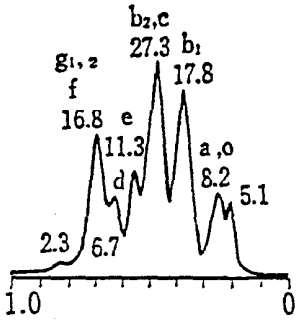
CONDITIONS: Stationary phase: CHROMAROD-SII
Mobile phase: $CHCl_3$:CH_3OH 50:1
Gas flow: H_2 160ml/min
Air 2.0 l/min
Scanning speed: 30sec/scan



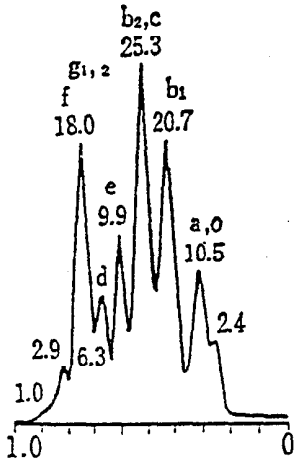
Components:
1. Esteriol
2. Estradiol
3. Estrone

CONDITIONS:
Stationary phase: CHROMAROD-S
Mobile phase: Toluene:Methanol
90 : 10
Gas flow: H_2 160ml/min
Air 2.0 l/min
Scanning speed: 30sec/scan

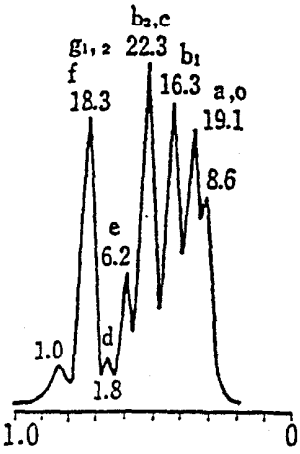
GINSENG SAPONIN



1 year old ginseng root



3 years old ginseng root

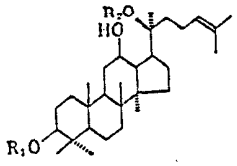


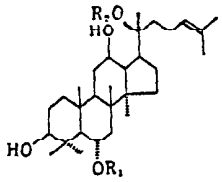
6 years old ginseng root

CONDITIONS: Stationary phase: CHROMAROD-S
Mobile phase: $CHCl_3$:CH_3OH:H_2O (65:35:10 , lower)
Gas flow: H_2 160ml/min Air 2.0 l/min
Scanning speed: 30sec/scan

The values indicate the average parcentage of ten experiments of peak-area given by individual saponins.

IDENTIFICATION

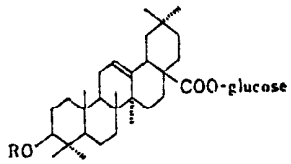




ginsenoside Rb_1: R_1=-glucose^{2}—^{1}glucose
R_2=-glucose^{2}—^{1}glucose
-Rb_2: R_1=-glucose^{2}—^{1}glucose
R_2=-glucose^{2}—^{1}arabinopyranose
-Rc: R_1=-glucose^{2}—^{1}glucose
R_2=-glucose^{2}—^{1}arabinofuranose
-Rd: R_1=-glucose^{2}—^{1}glucose
R_2=-glucose

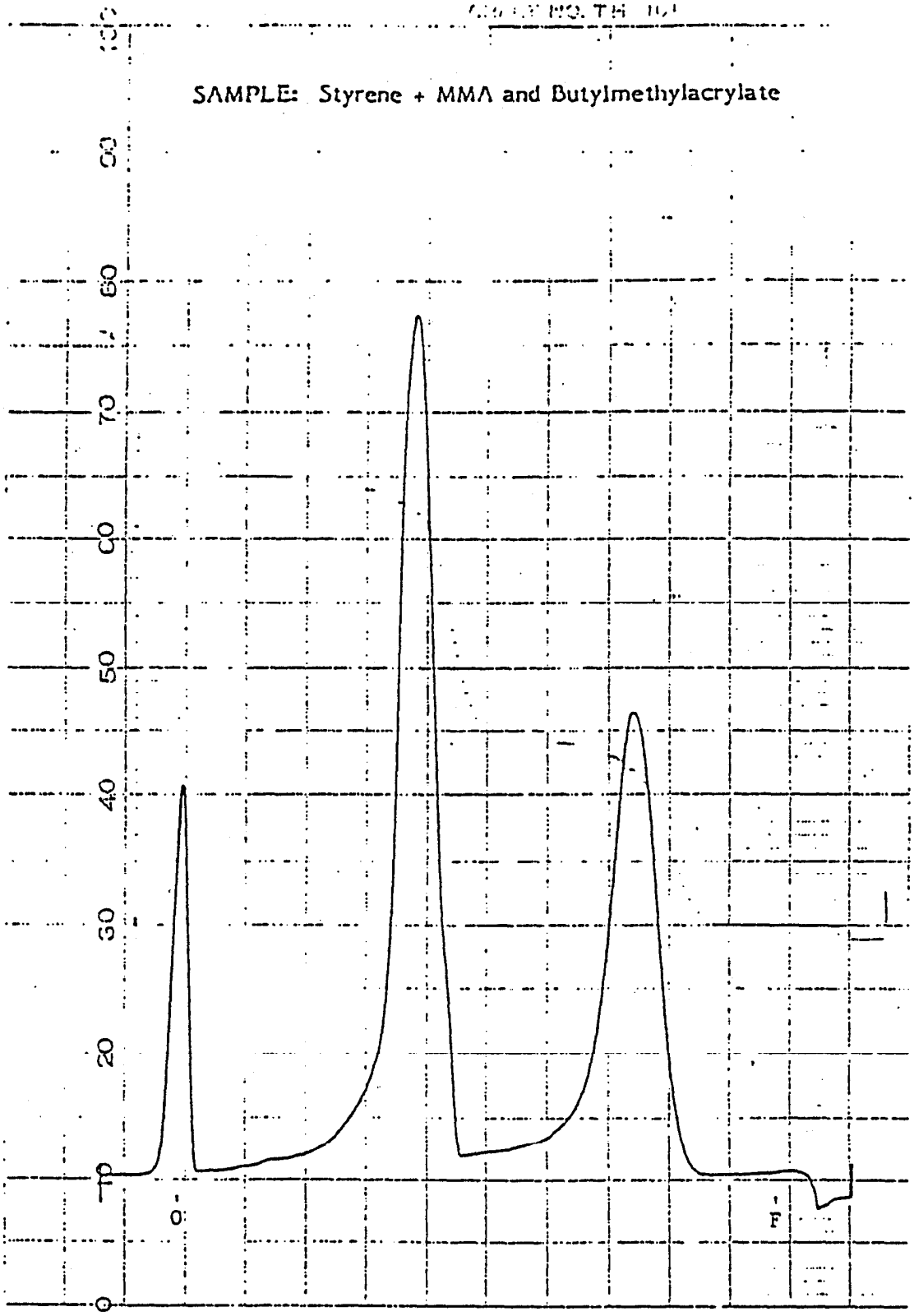
ginsenoside Re: R_1=-glucose^{2}—^{1}rhamnose
R_2=-glucose
-Rf: R_1=-glucose^{2}—^{1}glucose
R_2=H
-Rg_1: R_1=-glucose
R_2=-glucose
-Rg_2: R_1=-glucose^{2}—^{1}rhamnose
R_2=H

chikusetsu saponin III: R_1=-glucose^{4}(-^{1}xylose, -^{6}glucose)
R_2=H



ginsenoside Ro: R=-glucuronic acid^{2}—^{1}glucose (chikusetsu saponin V)
chikusetsu saponin IV: R=-glucuronic acid^{2}—^{1}arabinofuranose

SAMPLE: Styrene + MMA and Butylmethylacrylate



copolymer 10 mg/ml
chloroform 1
1st.ether 10cm, 2nd.acetone 5cm
CHROMAROD SII
160 2
30 100 mV
240 200 mV
IATROSCAN TH 10