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APPENDIX

Table 24 The chemical components of essential oil isolated from selected Rutaceous plants

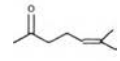
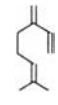
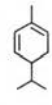
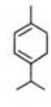
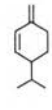
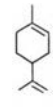
Retention time * (min)	Compound	Structure
5.09	α-thujene	
5.28	tricyclene	
5.71	camphene	
6.23	α-pinene	
6.35	sabinene	
6.51	β-pinene	
6.65	*6-methyl-5*-hepten-2-one	
6.77	myrcene	
6.83	mesitylene	
7.25	*meta*-mentha-1-(7),8-diene	
7.37	*a*-phellandrene	
7.65	δ-2-carene	
7.71	α-terpinene	
7.96	*o*-cymene	
8.10	β-phellandrene	
8.11	limonene	
8.16	sylvestrene	
8.28	*(Z)*-β-ocimene	
8.28	*1,8*-cineol	

Table 24 (Continued)

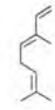
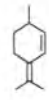
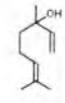
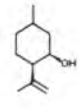
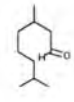
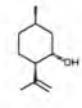
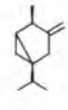
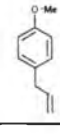
Retention time* (min)	Compound	Structure
8.68	(E)-β-ocimene	
9.24	γ-terpinene	
9.61	*cis*-sabinene hydrate	
9.63	*para*-mentha-2,4(8)-diene	
9.64	*cis*-linalool oxide	
10.15	terpinolene	
10.65	linalool	
11.59	*endo*-fenchol	
11.76	*cis-para*-menth-2-en-1-ol	
12.5	*trans-para*-menth-2-en-1-ol	
12.74	isopulegol	
12.89	citronellal	
13.08	*iso*-isopulegol	
13.31	*cis*-verbenol	
13.66	*cis*-thujone	
13.69	geijerene	
13.69	*n*-decanal	$CH_3(CH_2)_8CHO$
13.70	methyl chavicol	

Table 24 (Continued)

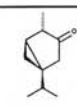
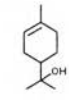
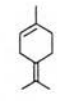
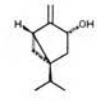
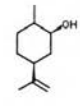
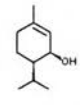
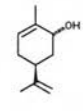
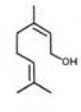
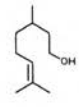
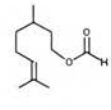
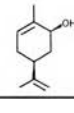
Retention time* (min)	Compound	Structure
13.83	*trans*-thujone	
14.18	terpin-4-ol	
14.31	*trans*-verbenol	
14.37	sabina ketone	
14.72	α-terpineol	
14.75	terpinolene	
15.09	*trans*-sabinol	
15.29	*n*-decanol	$CH_3(CH_2)_8CH_2OH$
15.34	dihydrocarveol	
15.36	*cis*-piperitol	
15.46	decanol acetate	$CH_3(CH_2)_9OAc$
15.78	*trans*-carveol	
15.94	*trans*-ascaridole	
16.04	nerol	
16.14	citronellol	
16.21	citronellyl formate	
16.36	*cis*-carveol	

Table 24 (Continued)

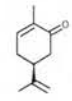
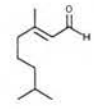
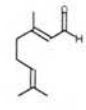
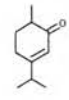
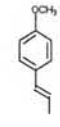
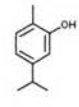
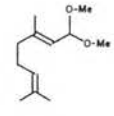
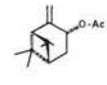
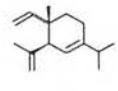
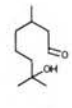
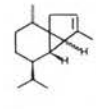
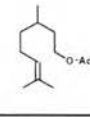
Retention time (min)	Compound	Structure
16.64	neral	
16.86	carvone	
17.18	geraniol	
18.36	*β*-pinene oxide	
18.46	undecanal	$CH_3(CH_2)_9CHO$
18.48	geranial	
19.26	carvenone	
19.29	*(E)*-anethol	
19.31	carvacrol	
19.71	*cis*-pinene hydrate	
19.87	*(E)*-citral dimethoxy	
20.38	*cis*-pinocarvyl acetate	
20.76	*δ*-elemene	
21.13	Hydroxy citronellal	
21.18	*α*-cubebene	
21.62	citronellyl acetate	

Table 24 (Continued)

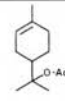
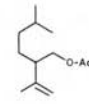
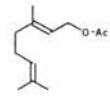
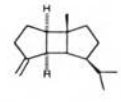
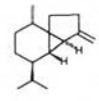
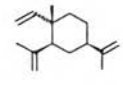
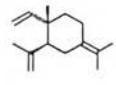
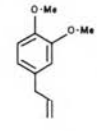
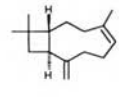
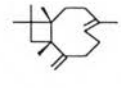
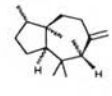
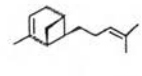
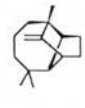
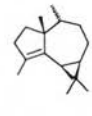
Retention time* (min)	Compound	Structure
21.64	α-terpinyl acetate	
21.66	lavandulyl acetate	
22.88	geranyl acetate	
23.03	β-bourbonene	
23.20	β-cubebene	
23.23	β-elemene	
23.56	γ-elemene	
23.81	methyl eugenol	
23.91	*(Z)*-caryophyllene	
24.54	*9-epi-(E)*-caryophyllene	
24.99	*1,7-di-epi-*β-cedrene	
25.15	α-*trans*-bergamotene-	
25.34	longifolene	
25.53	α-gurjunene	

Table 24 (Continued)

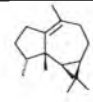
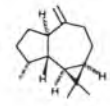
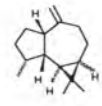
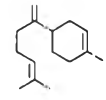
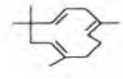
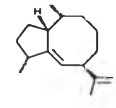
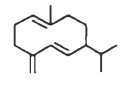
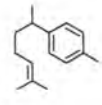
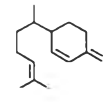
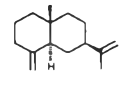
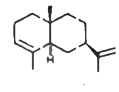
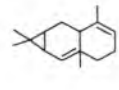
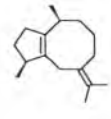
Retention time* (min)	Compound	Structure
25.81	viridiflorene	
25.91	aromadendrene	
25.97	*allo*-aromadendrene	
26.04	β-bisabolene	
26.05	α-humulene	
26.96	γ-gurjunene	
26.96	seychellene	
27.18	germacrene D	
27.23	*ar*-urcumene	
27.33	β-sesquiphellandrene	
27.34	β-selinene	
27.63	α-selinene	
27.77	bicyclogermacrene	
28.07	*cis*-β-guaiene	

Table 24 (Continued)

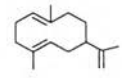
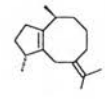
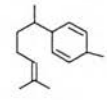
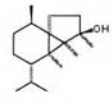
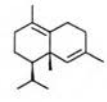
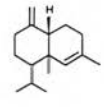
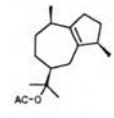
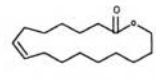
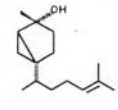
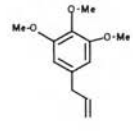
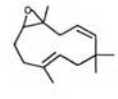
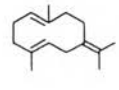
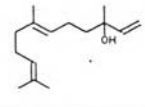
Retention time* (min)	Compound	Structure
28.11	*(E)*-caryophylene	
28.18	germacrene A	
28.19	*trans*-β-guaiene	
28.46	β-curcumene	
28.61	*epi*-cubebol	
28.73	δ-cadinene	
28.78	γ-cadinene	
29.26	guaiol acetate	
29.34	musk ambrette	
29.85	*cis*-sesquisabinene hydrate	
30.00	elemicin	
30.28	humulene epoxide II	
30.32	germacrene B	
30.55	*(E)*-nerolidol	

Table 24 (Continued)

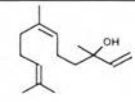
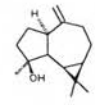
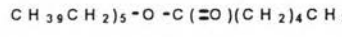
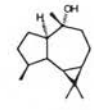
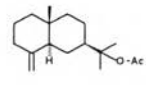
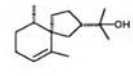
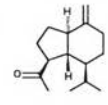
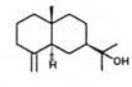
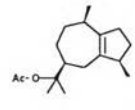
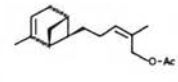
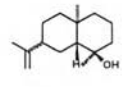
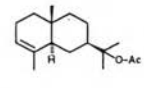
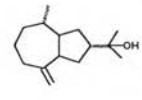
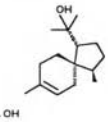
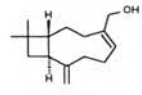
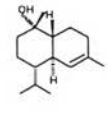
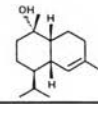
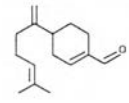
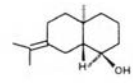
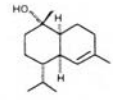
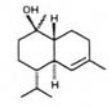
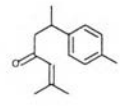
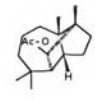
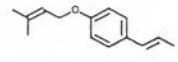
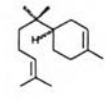
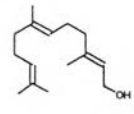
Retention time* (min)	Compound	Structure
30.60	*(Z)*-nerolidol	
31.05	Spathulenol	
31.53	*n*-hexyl-n-hexanoate	
31.77	globulol	
31.84	*β*-eudesmol acetate	
32.06	hinesol	
32.21	*β*-oplopenone	
32.33	*β*-eudesmol	
32.33	guaiol acetate	
32.33	*(Z)*-*α*-*trans*-bergamotol acetate	
32.63	selin-11-en-4-alpha-ol	
33.09	*α*-eudesmol acetate	
33.36	*bicyclo*-vetivenol	
33.49	*α*-acorenol	
33.53	*14-hydroxy-9-epi*-caryophyllene	
33.67	*epi*-*α*-cadinol	
33.71	*α*–muurolol	

Table 24 (Continued)

Retention time* (min)	Compound	Structure
34.03	*β*-bisabolenal	
34.22	juniper camphor	
34.29	*epi*-*α*-muurolol	
34.42	*α*-cadinol	
34.58	*ar*-tumerone	
34.75	longiborneol acetate	
35.11	foeniculin	
35.46	*epi*–*α*-bisabolol	
40.74	*(E,E)*-farnesol	

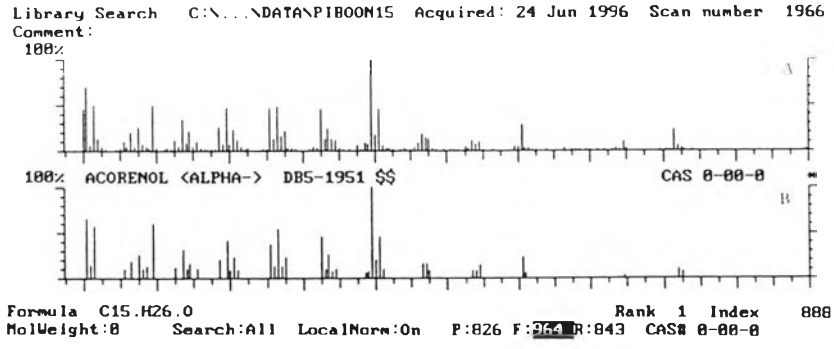


Figure 45 Mass spectrum of acorenol (A) compared with mass spectrum of authentic acorenol (B) by GC-MS.

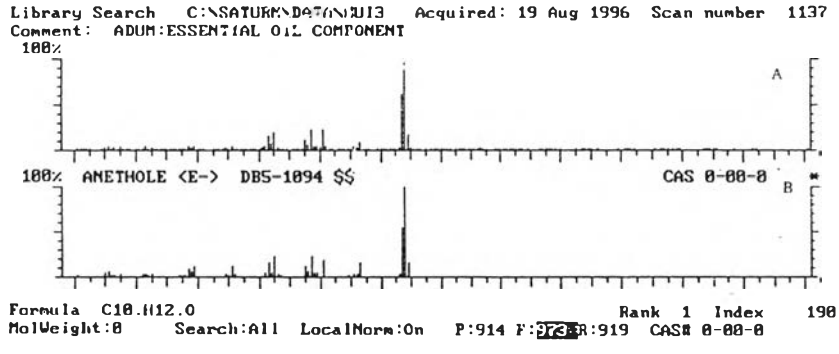


Figure 46 Mass spectrum of anethol<(E)-> (A) compared with mass spectrum of authentic anethol<(E)-> (B) by GC-MS.

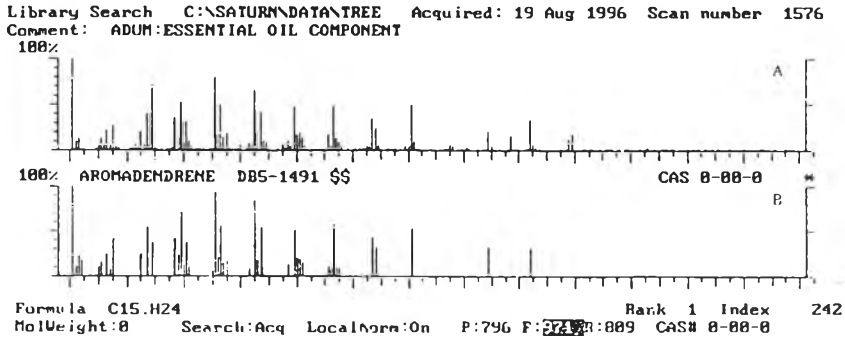


Figure 47 Mass spectrum of aromadendrene (A) compared with mass spectrum of authentic aromadendrene (B) by GC-MS.

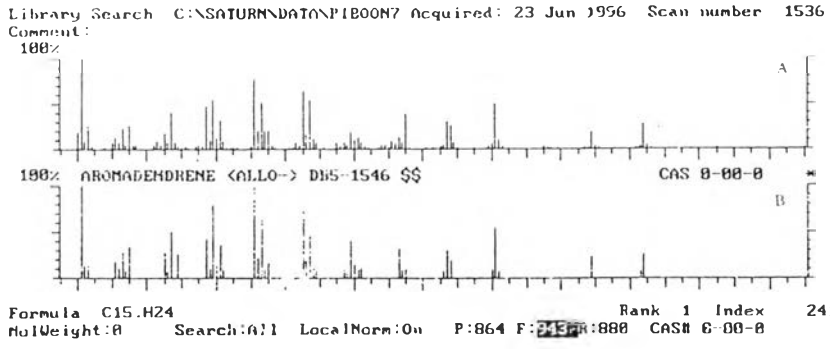


Figure 48 Mass spectrum of aromadendrene<*allo*-> (A) compared with mass spectrum of authentic aromadendrene<*allo*-> (B) by GC-MS.

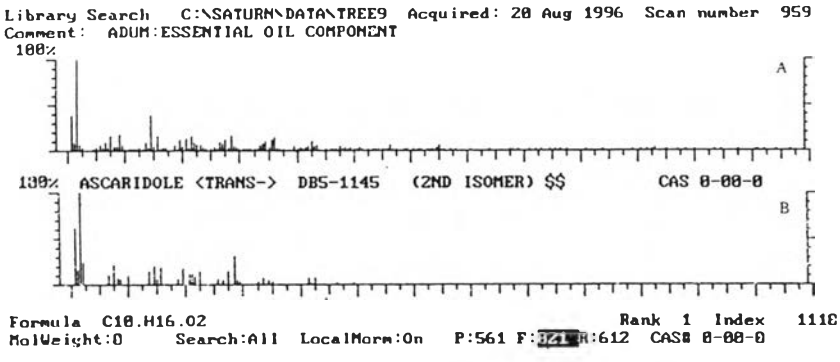


Figure 49 Mass spectrum of ascaridol<*trans*-> (A) compared with mass spectrum of authentic carene<*delta-2*-> (B) by GC-MS.

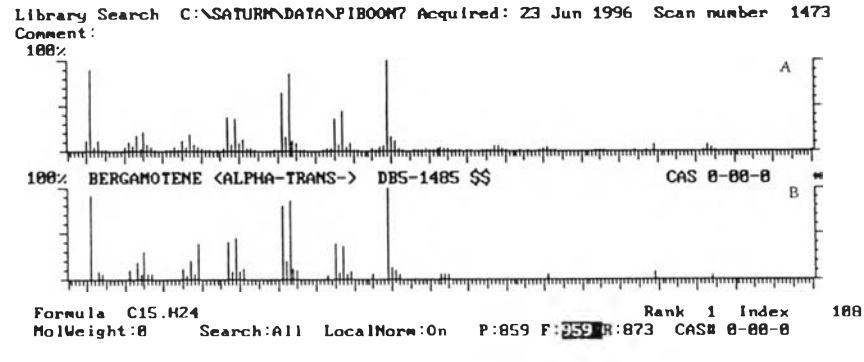


Figure 50 Mass spectrum of bergamotene<*alpha-trans*-> (A) compared with mass spectrum of authentic bergamotene<*alpha-trans*-> (B) by GC-MS.

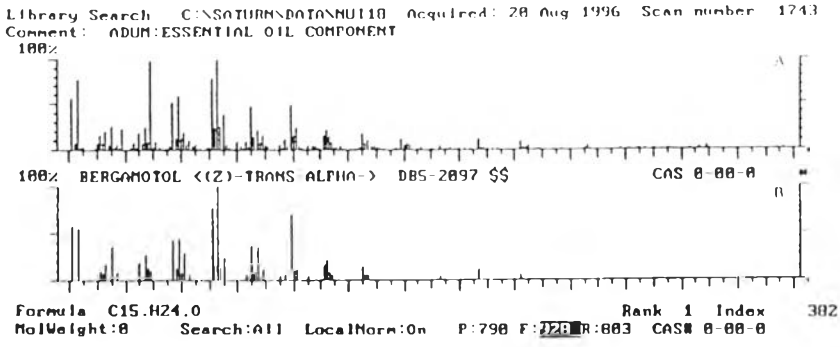


Figure 51 Mass spectrum of bergamotol acetate<*(Z)-alpha-trans-*> (A) compared with mass spectrum of authentic bergamotol acetate<*(Z)-alpha-trans-*> (B) by GC-MS.

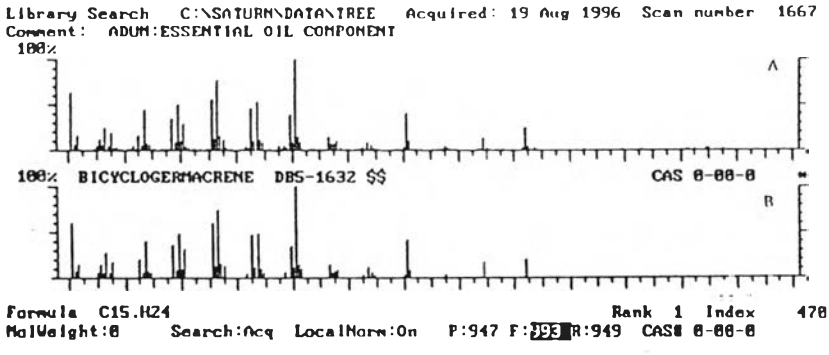


Figure 52 Mass spectrum of bicyclogermacrene (A) compared with mass spectrum of authentic bicyclogermacrene (B) by GC-MS.

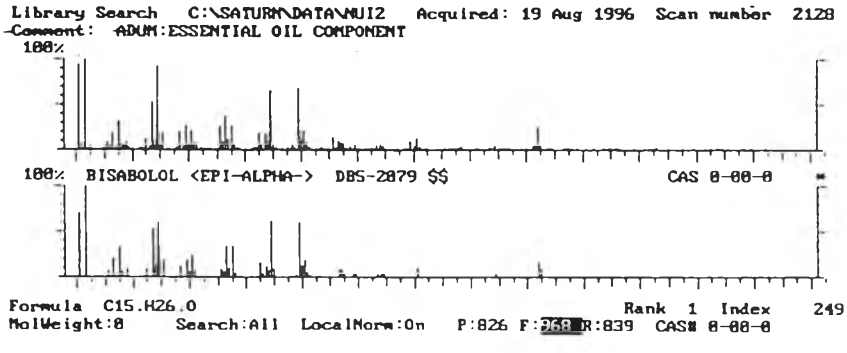


Figure 53 Mass spectrum of bisabolenal<*beta-*> (A) compared with mass spectrum of authentic bisabolenal<*beta-*> (B) by GC-MS.

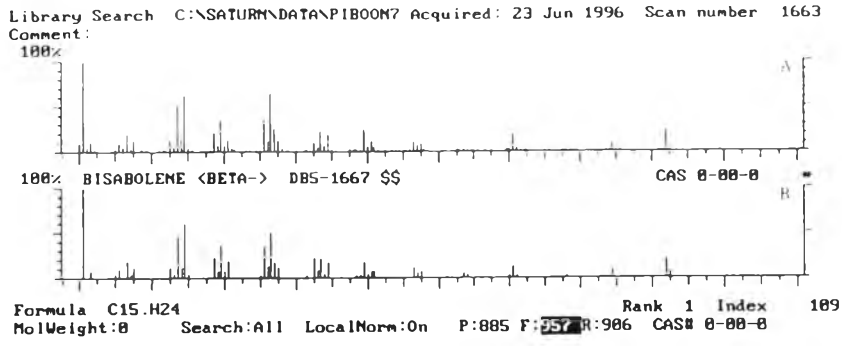


Figure 54 Mass spectrum of bisabolene<*beta*-> (A) compared with mass spectrum of authentic bisabolene<*beta*-> (B) by GC-MS.

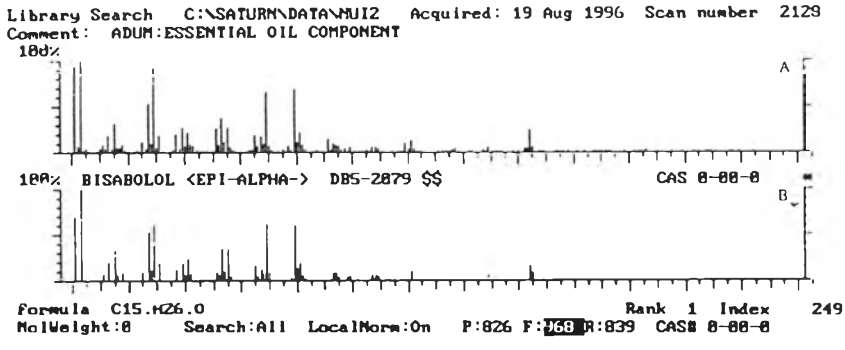


Figure 55 Mass spectrum of bisabolol<*epi-beta*-> (A) compared with mass spectrum of authentic bisabolol<*epi-beta*-> (B) by GC-MS.

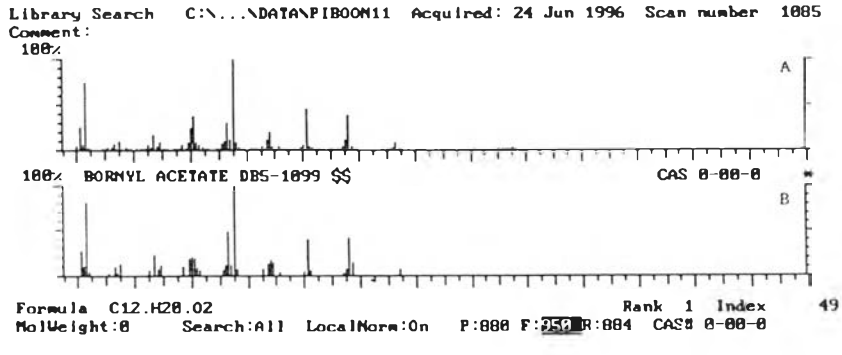


Figure 56 Mass spectrum of bornyl acetate (A) compared with mass spectrum of authentic bornyl acetate (B) by GC-MS.

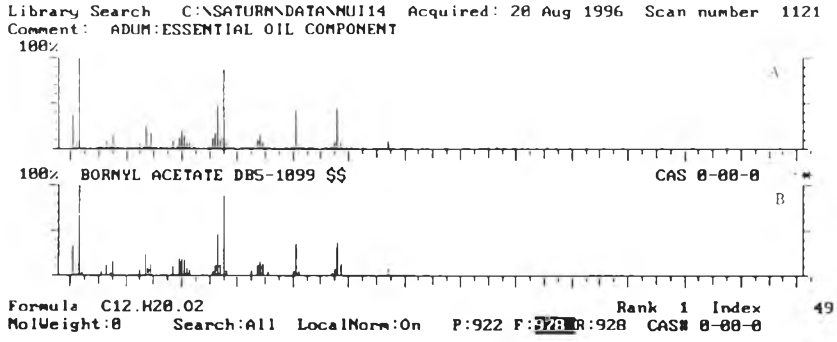


Figure 57 Mass spectrum of bornyl acetate<*cis*-> (A) compared with mass spectrum of authentic bornyl acetate<*cis*-> (B) by GC-MS.

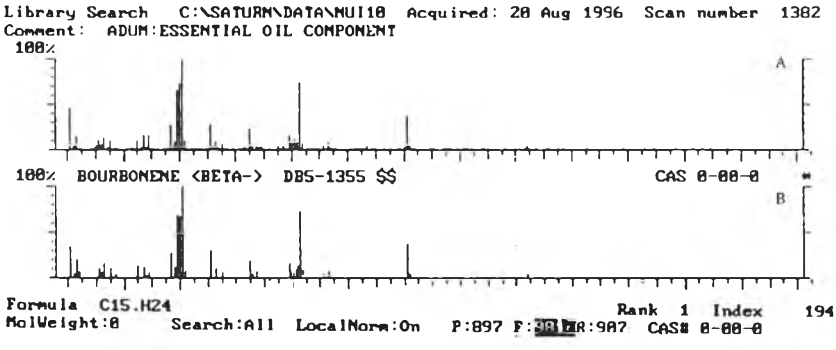


Figure 58 Mass spectrum of bourbonene (A) compared with mass spectrum of authentic bourbonene (B) by GC-MS.

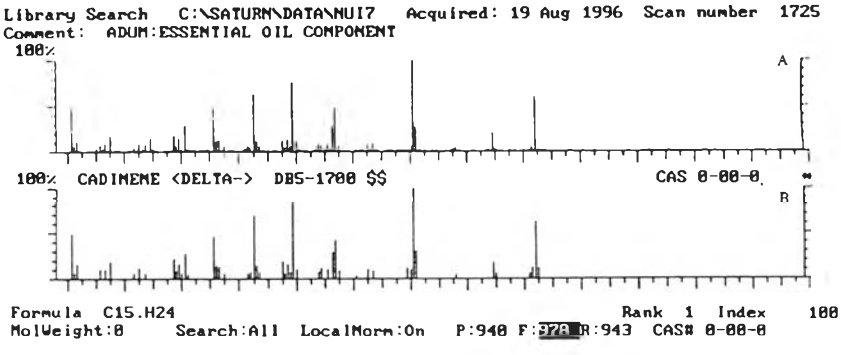


Figure 59 Mass spectrum of cadinene<*delta*-> (A) compared with mass spectrum of authentic cadinene<*delta*-> (B) by GC-MS.

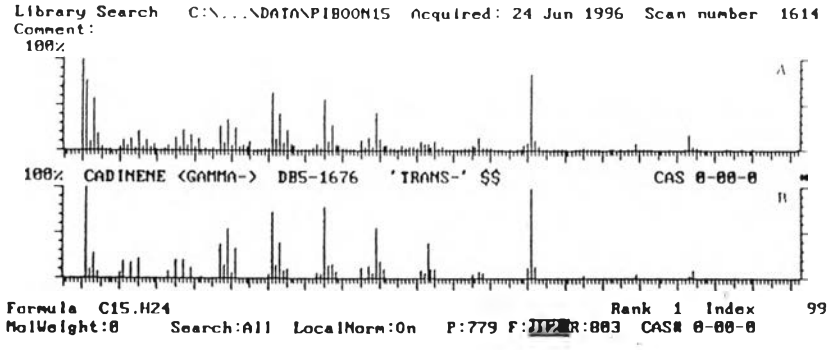


Figure 60 Mass spectrum of cadinene <*gamma*-> (A) compared with mass spectrum of authentic cadinene <*gamma*-> (B) by GC-MS.

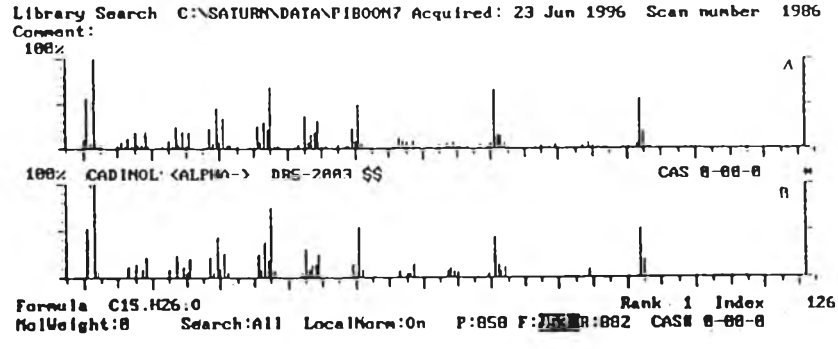


Figure 61 Mass spectrum of cadinol<*alpha*-> (A) compared with mass spectrum of authentic cadinol<*alpha*-> (B) by GC-MS.

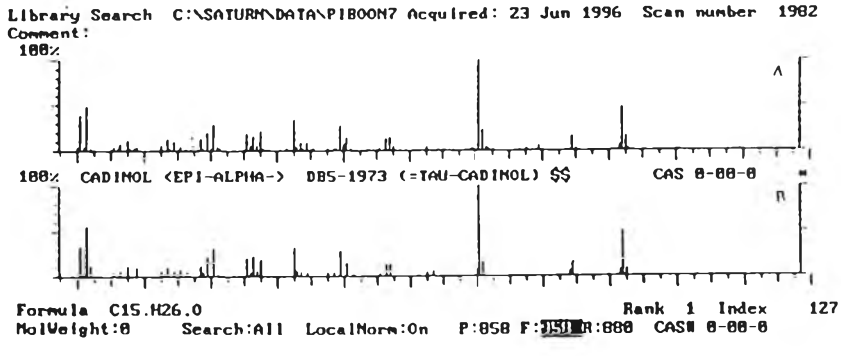


Figure 62 Mass spectrum of cadinol<*epi-alpha*-> (A) compared with mass spectrum of authentic cadinol<*epi-alpha*-> (B) by GC-MS.

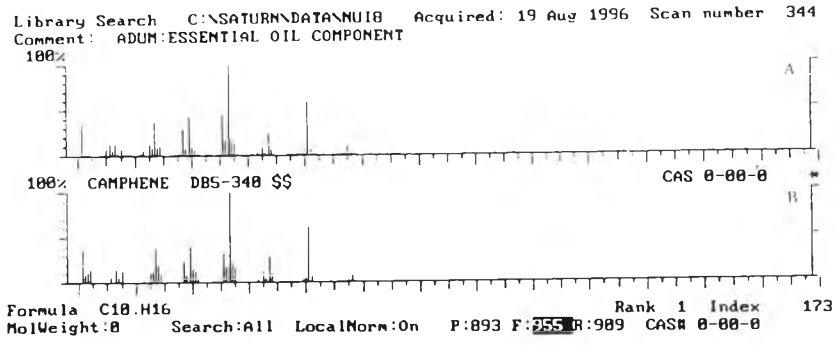


Figure 63 Mass spectrum of camphene (A) compared with mass spectrum of authentic camphene (B) by GC-MS.

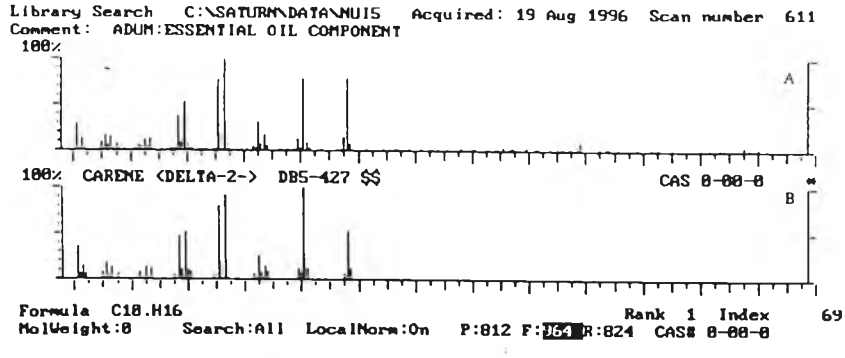


Figure 64 Mass spectrum of carene<*delta-2-*> (A) compared with mass spectrum of authentic carene <*delta-2-*> (B) by GC-MS.

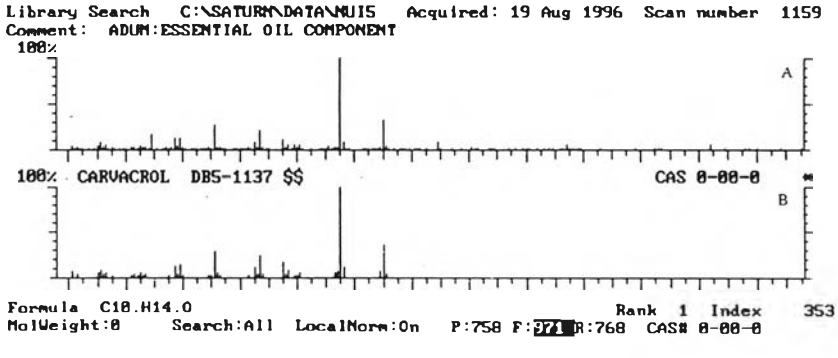


Figure 65 Mass spectrum of carvacrol (A) compared with mass spectrum of authentic carvacrol (B) by GC-MS.

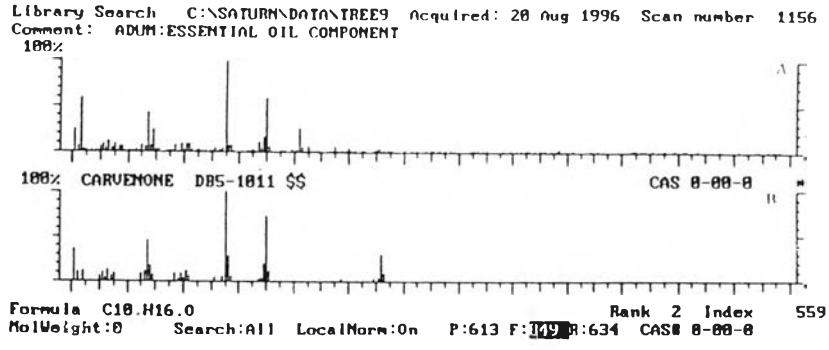


Figure 66 Mass spectrum of carvenone (A) compared with mass spectrum of authentic carvenone (B) by GC-MS.

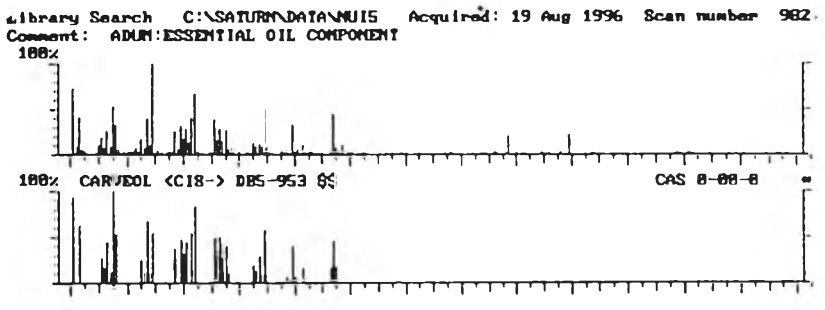


Figure 67 Mass spectrum of carveol<*cis*-> (A) compared with mass spectrum of authentic carveol<*cis*-> (B) by GC-MS.

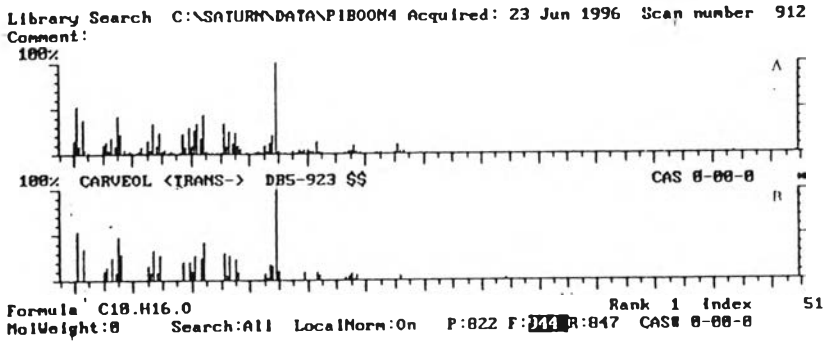


Figure 68 Mass spectrum of carveol<*trans*-> (A) compared with mass spectrum of authentic carveol<*trans*-> (B) by GC-MS.

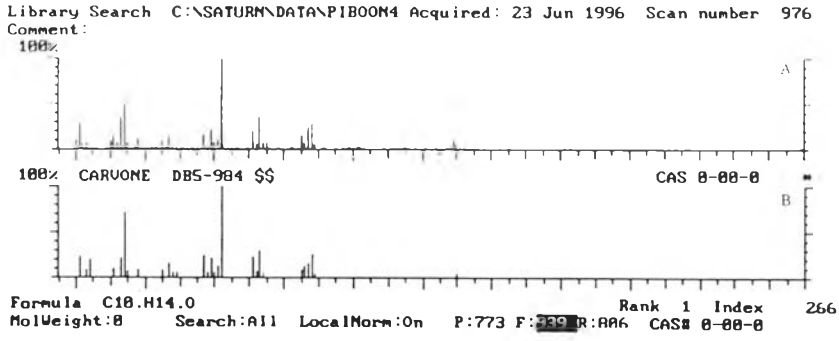


Figure 69 Mass spectrum of carvone (A) compared with mass spectrum of authentic carvone (B) by GC-MS.

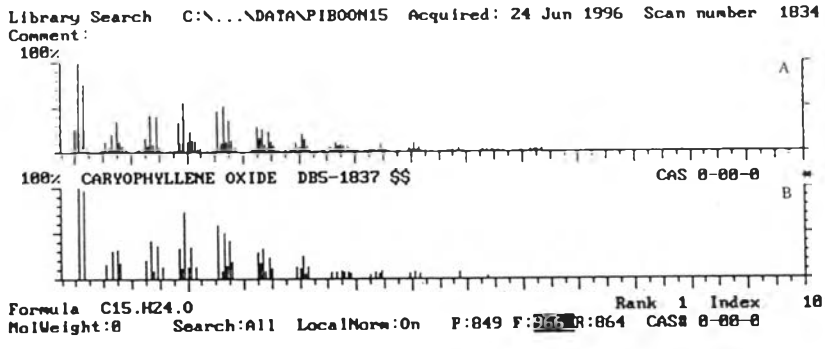


Figure 70 Mass spectrum of caryophyllene oxide (A) compared with mass spectrum of authentic caryophyllene oxide (B) by GC-MS.

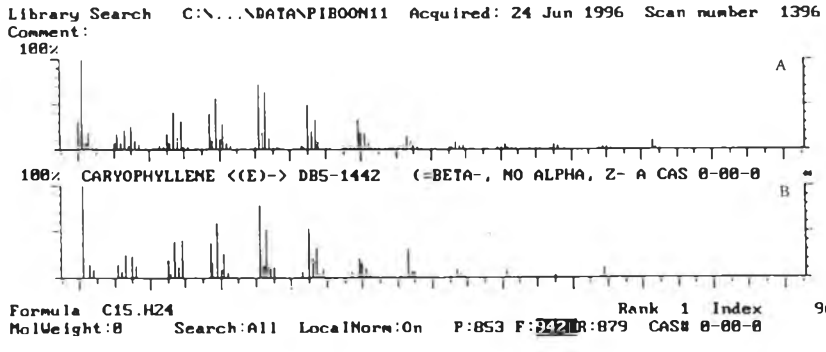


Figure 71 Mass spectrum of caryophyllene <*(E)*-> (A) compared with mass spectrum of authentic caryophyllene <*(E)*-> (B) by GC-MS.

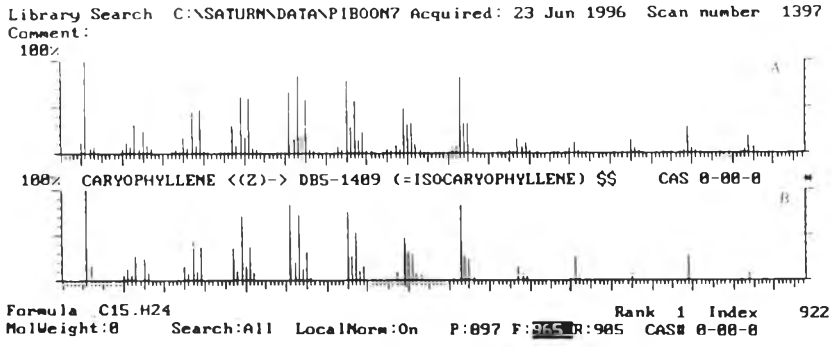


Figure 72 Mass spectrum of caryophyllene <*(Z)*-> (A) compared with mass spectrum of authentic caryophyllene <*(Z)*-> (B) by GC-MS.

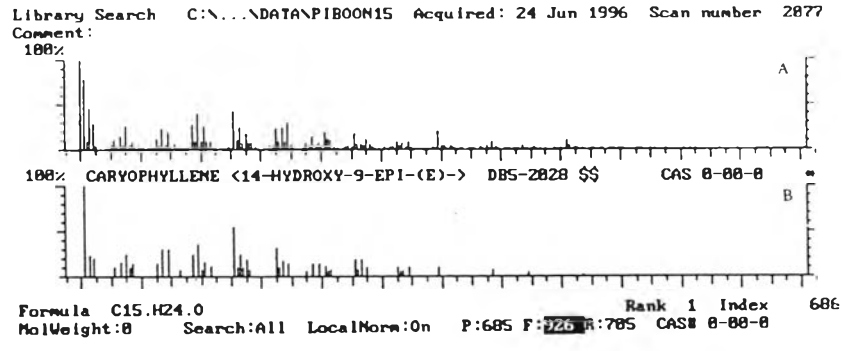


Figure 73 Mass spectrum of caryophyllene <*14-hydroxy-9-Epi-(E)*-> (A) compared with mass spectrum of authentic caryophyllene <*14-hydroxy-9-epi-(E)*-> (B) by GC-MS.

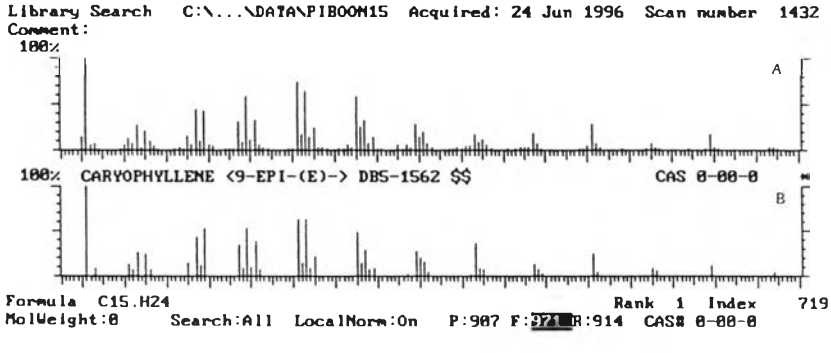


Figure 74 Mass spectrum of caryophyllene <*9-Epi-(E)*-> (A) compared with mass spectrum of authentic caryophyllene <*9-Epi-(E)*-> (B) by GC-MS.

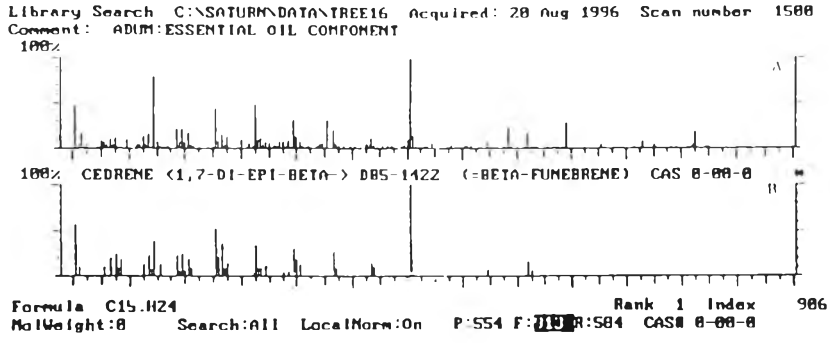


Figure 75 Mass spectrum of carene<*1,7-di-Epi-beta-*> (A) compared with mass spectrum of authentic carene<*1,7-di-Epi-beta-*> (B) by GC-MS.

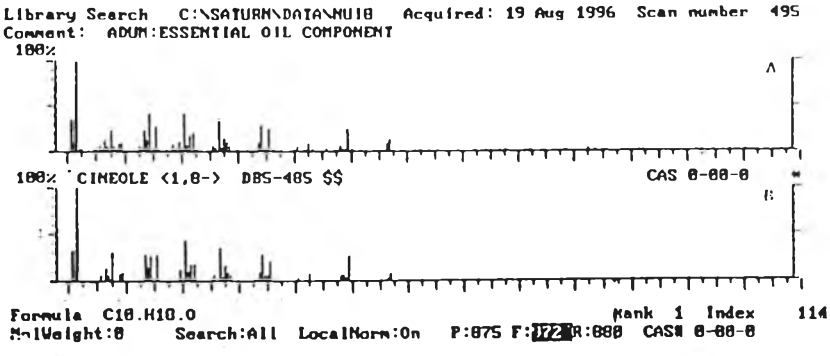


Figure 76 Mass spectrum of cineol<*1,8-*> (A) compared with mass spectrum of authentic cineol<*1,8-*> (B) by GC-MS.

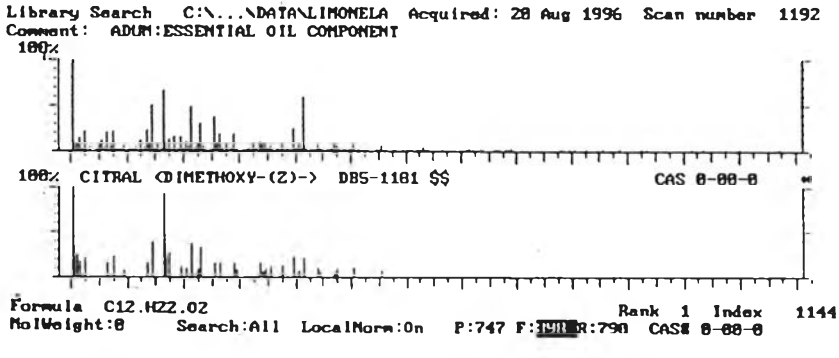


Figure 77 Mass spectrum of citral dimemethoxy<*(Z)-*> (A) compared with mass spectrum of authentic citral dimethoxy<*(Z)-*> (B) by GC-MS.

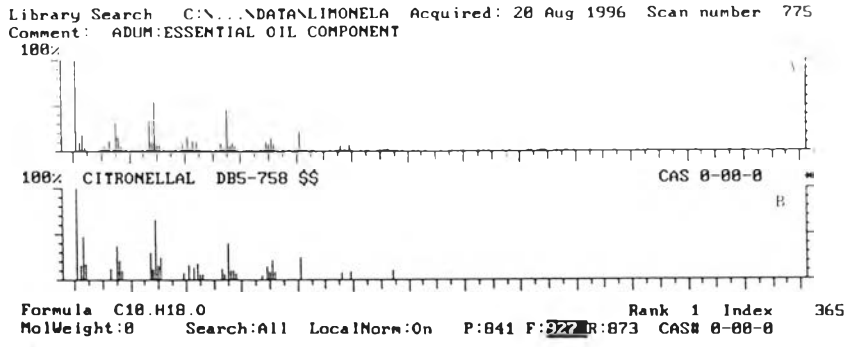


Figure 78 Mass spectrum of citronellal (A) compared with mass spectrum of authentic citronellal (B) by GC-MS.

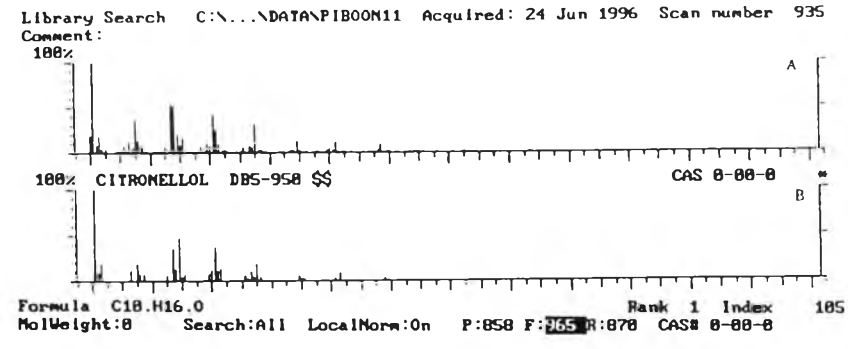


Figure 79 Mass spectrum of citronellol (A) compared with mass spectrum of authentic citronellol (B) by GC-MS.

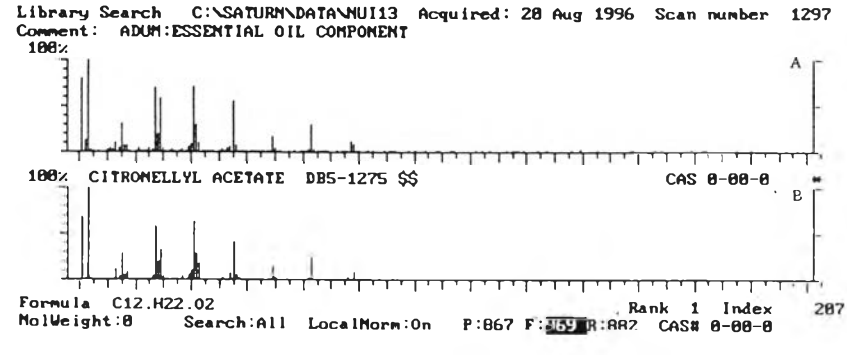


Figure 80 Mass spectrum of citronellyl acetate (A) compared with mass spectrum of authentic citronellyl acetate (B) by GC-MS.

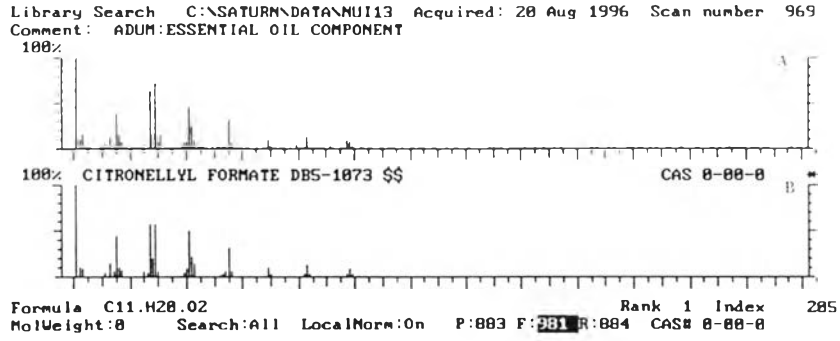


Figure 81 Mass spectrum of citronellyl formate(A) compared with mass spectrum of authentic citronellyl formate (B) by GC-MS.

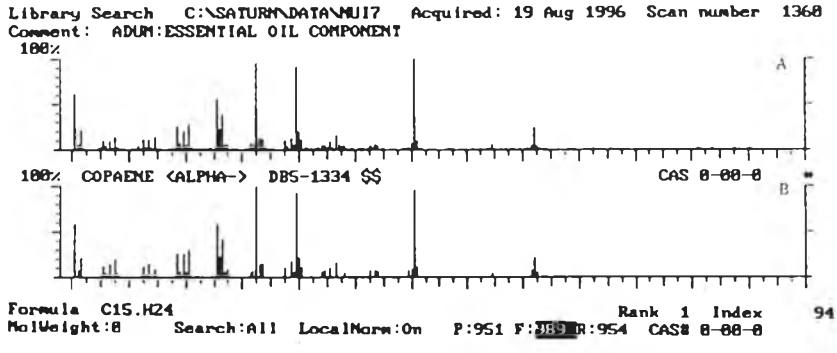


Figure 82 Mass spectrum of copaene<*alpha*-> (A) compared with mass spectrum of authentic copaene<*alpha*-> (B) by GC-MS.

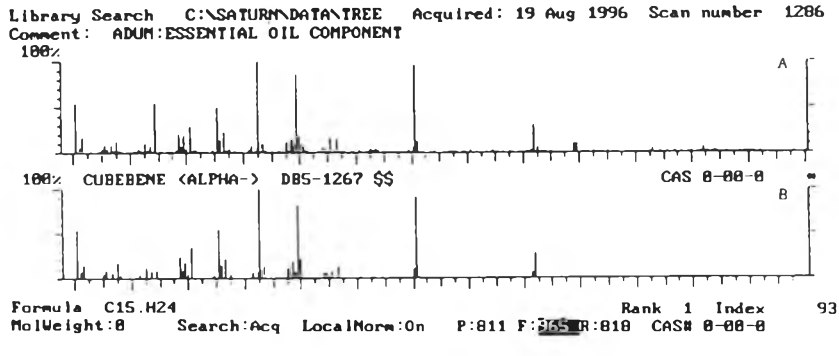


Figure 83 Mass spectrum of cubebene<*alpha*-> (A) compared with mass spectrum of authentic cubebene<*alpha*-> (B) by GC-MS.

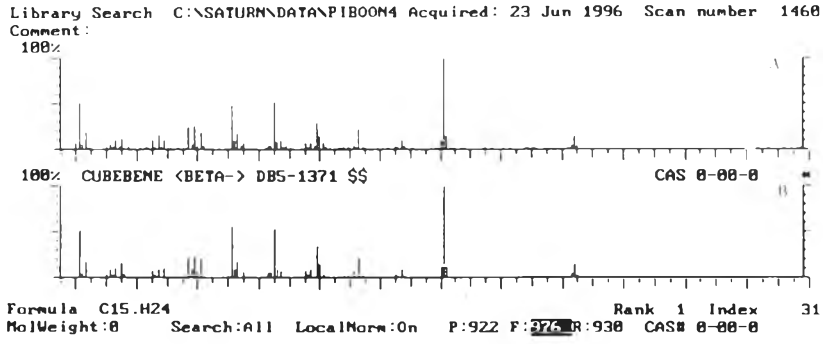


Figure 84 Mass spectrum of cubebene<*beta*-> (A) compared with mass spectrum of authentic cubebene<*beta*-> (B) by GC-MS.

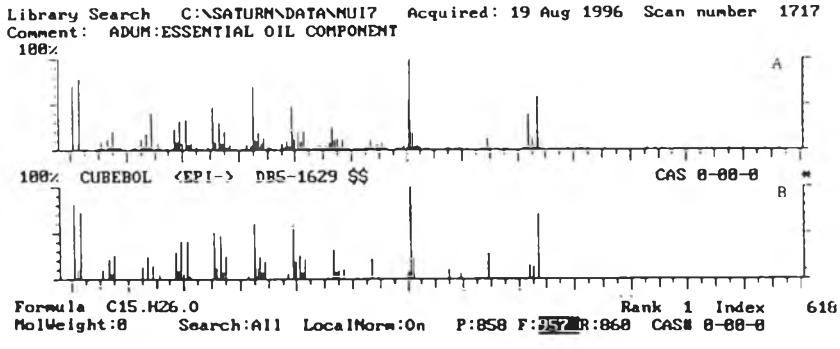


Figure 85 Mass spectrum of cubebol<*Epi*-> (A) compared with mass spectrum of authentic cubebol<*Epi*-> (B) by GC-MS.

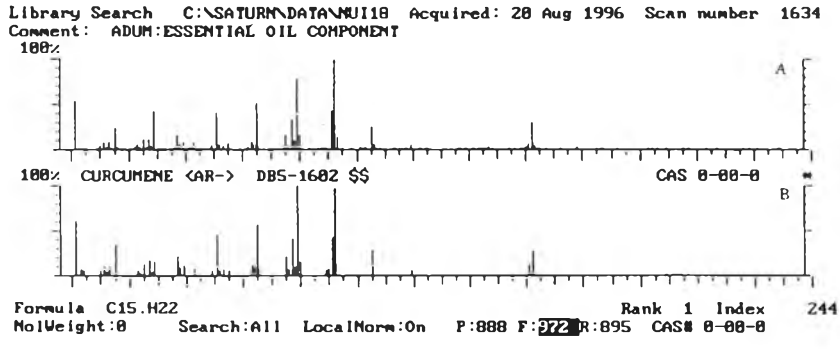


Figure 86 Mass spectrum of curcumene<*ar*-> (A) compared with mass spectrum of authentic curcumene<*ar*-> (B) by GC-MS.

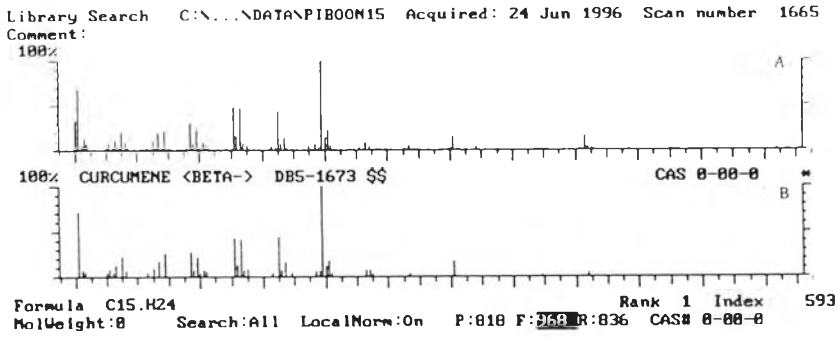


Figure 87 Mass spectrum of curcumene<*beta*-> (A) compared with mass spectrum of authentic curcumene<*beta*-> (B) by GC-MS.

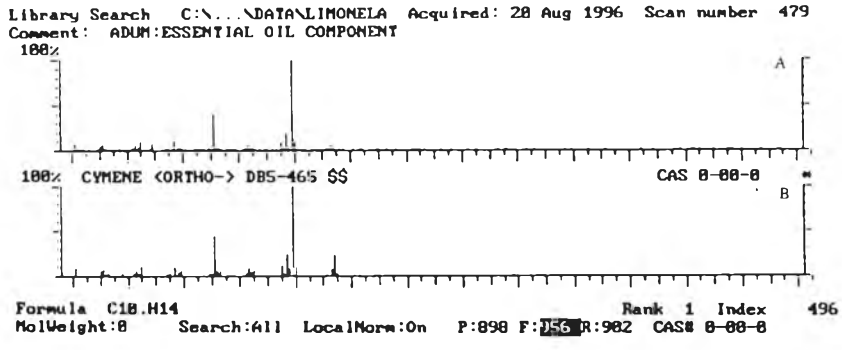


Figure 88 Mass spectrum of cymene<*ortho*-> (A) compared with mass spectrum of authentic cymene<*ortho*-> (B) by GC-MS.

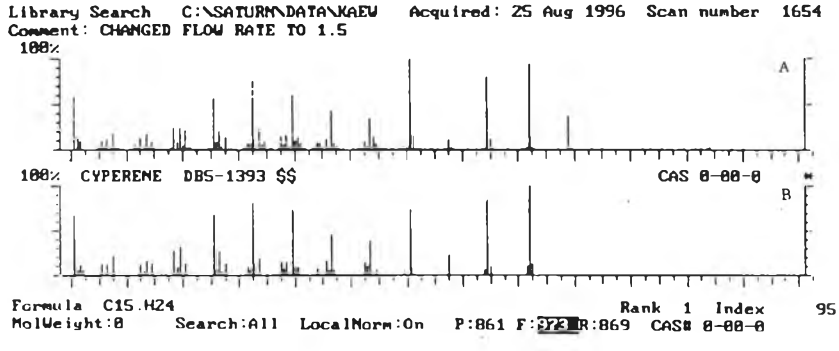


Figure 89 Mass spectrum of cyperene (A) compared with mass spectrum of authentic cyperene (B) by GC-MS.

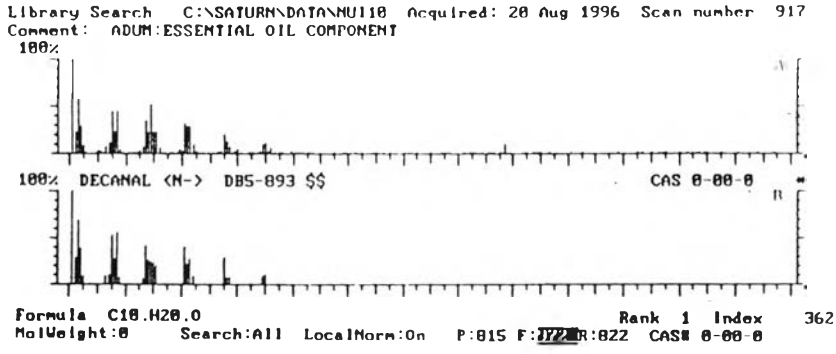


Figure 90 Mass spectrum of decanal<*n*-> (A) compared with mass spectrum of authentic decanal<*n*-> (B) by GC-MS.

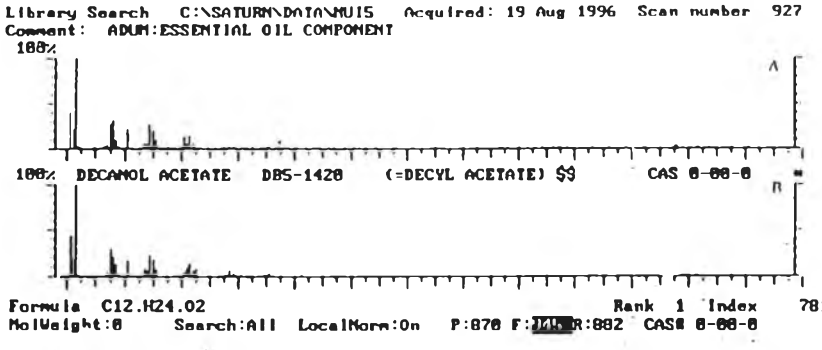


Figure 91 Mass spectrum of decanol acetate (A) compared with mass spectrum of authentic decanol acetate (B) by GC-MS.

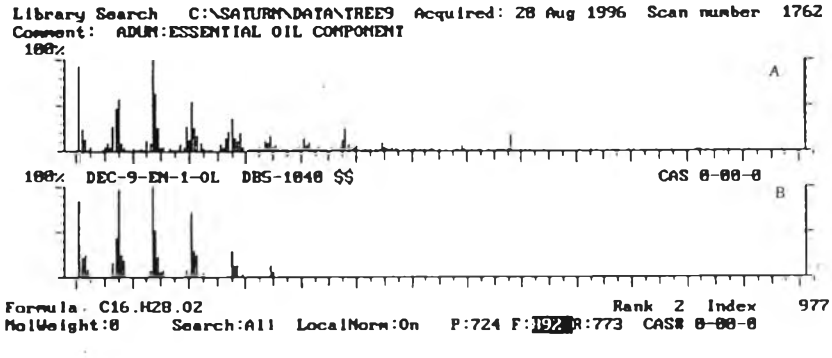


Figure 92 Mass spectrum of dec-9-en-1-ol (A) compared with mass spectrum of authentic dec-9-en-i-ol (B) by GC-MS.

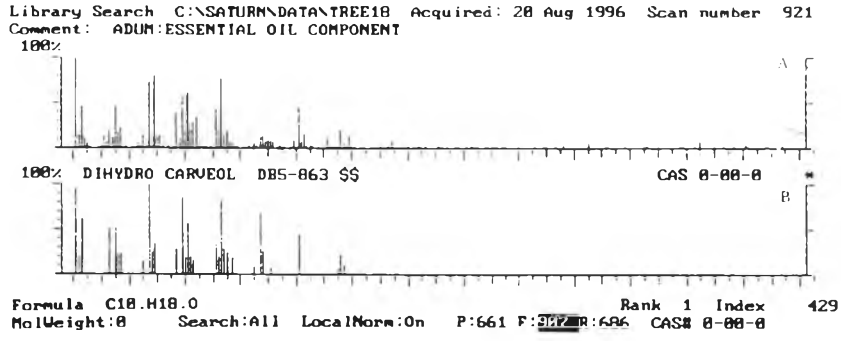


Figure 93 Mass spectrum of dihydrocarveol (A) compared with mass spectrum of authentic dihydrocarveol (B) by GC-MS.

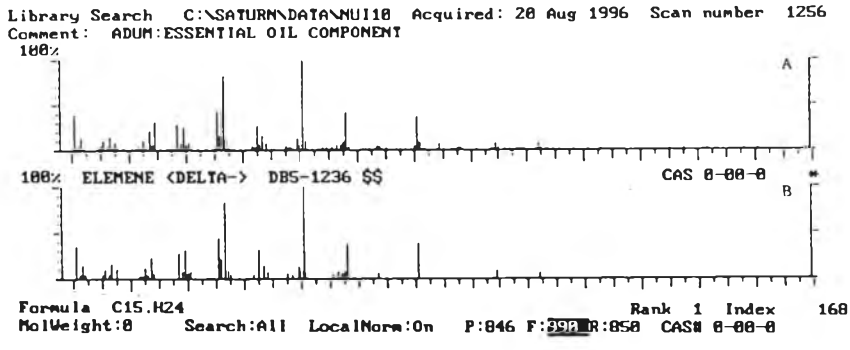


Figure 94 Mass spectrum of elemene<*beta*-> (A) compared with mass spectrum of authentic elemene<*beta*-> (B) by GC-MS.

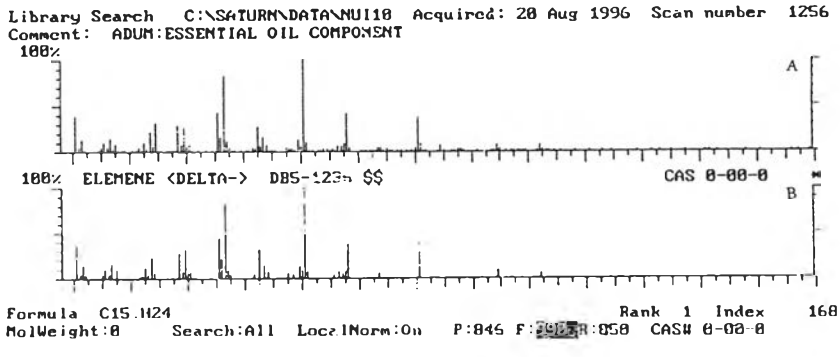


Figure 95 Mass spectrum of elemene<*delta*-> (A) compared with mass spectrum of authentic elemene<*delta*-> (B) by GC-MS.

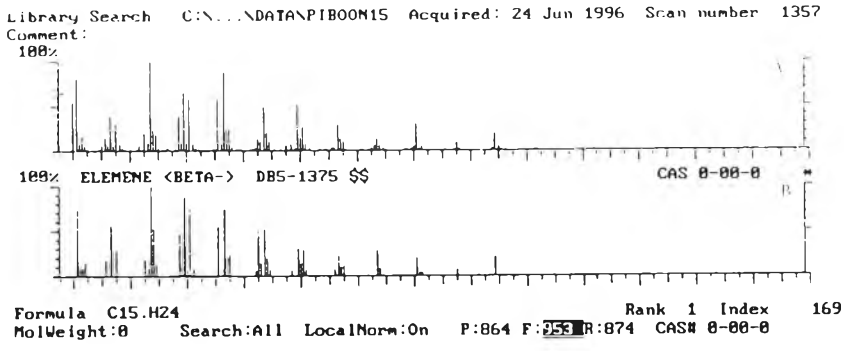


Figure 96 Mass spectrum of elemene<*gamma*-> (A) compared with mass spectrum of authentic elemene<*gamma*-> (B) by GC-MS.

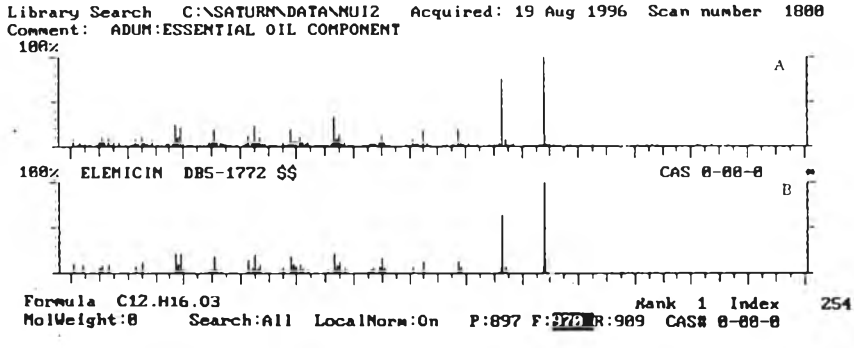


Figure 97 Mass spectrum of elemicin (A) compared with mass spectrum of authentic elemicin (B) by GC-MS.

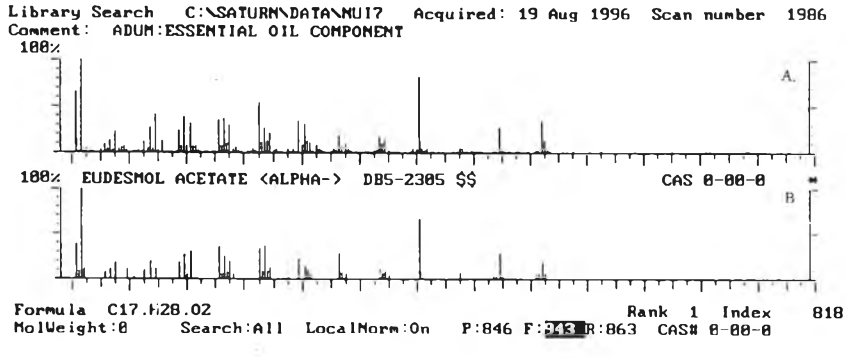


Figure 98 Mass spectrum of eudesmol acetate<*alpha*-> (A) compared with mass spectrum of authentic eudesmol acetate<*alpha*-> (B) by GC-MS.

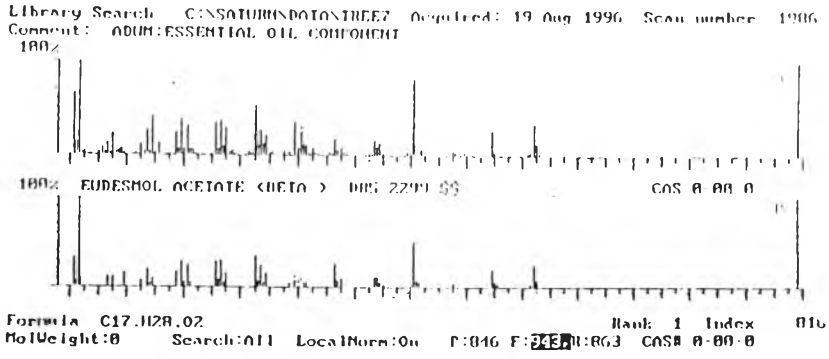


Figure 99 Mass spectrum of eudesmol acetate<*beta*-> (A) compared with mass spectrum of authentic eudesmol acetate<*beta*-> (B) by GC-MS.

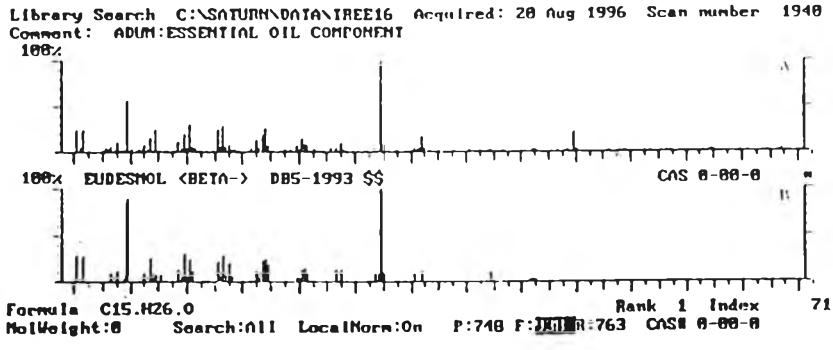


Figure 100 Mass spectrum of eudesmol<*beta*-> (A) compared with mass spectrum of authentic eudesmol <*beta*-> (B) by GC-MS.

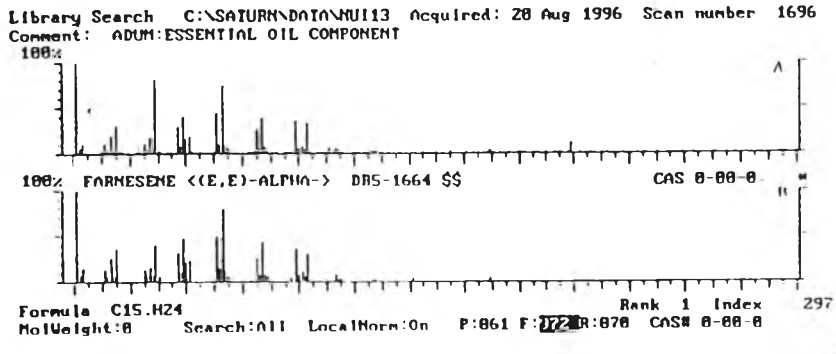


Figure 101 Mass spectrum of farnescene<*(E,E)-alpha*-> (A) compared with mass spectrum of authentic farnescene<*(E,E)-alpha*-> (B) by GC-MS.

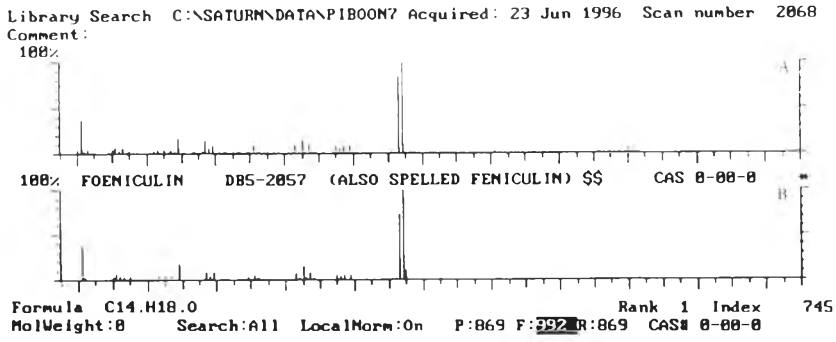


Figure 102 Mass spectrum of foeniculin (A) compared with mass spectrum of authentic foeniculin (B) by GC-MS.

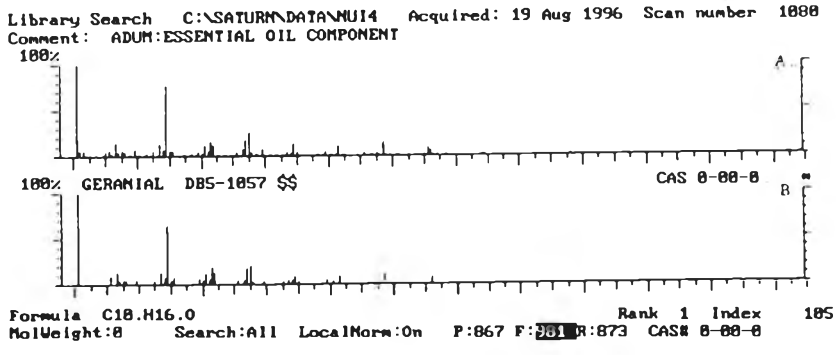


Figure 103 Mass spectrum of geranial (A) compared with mass spectrum of authentic geranial (B) by GC-MS.

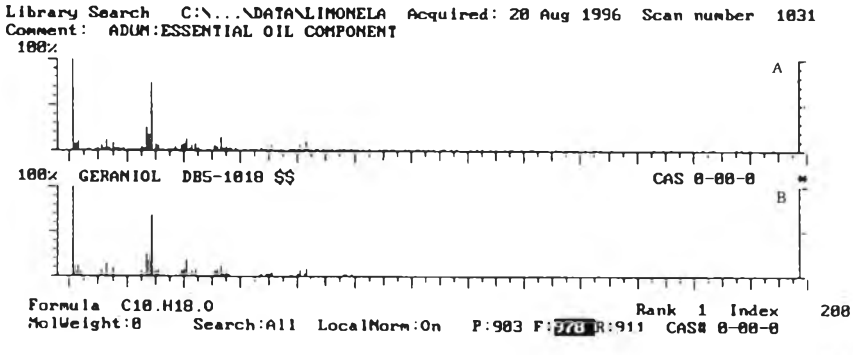


Figure104 Mass spectrum of geraniol (A) compared with mass spectrum of authentic geraniol (B) by GC-MS.

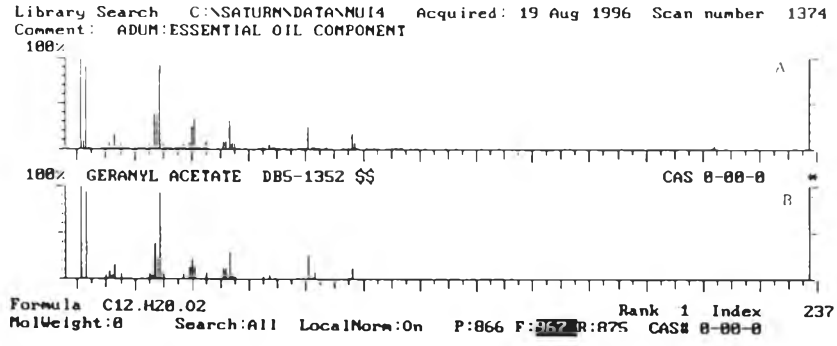


Figure105 Mass spectrum of geranyl acetate (A) compared with mass spectrum of authentic geranyl acetate (B) by GC-MS.

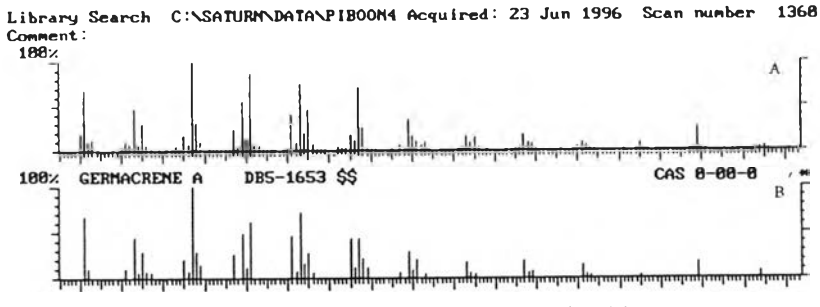


Figure 106 Mass spectrum of germacrene A (A) compared with mass spectrum of authentic germacrene A (B) by GC-MS.

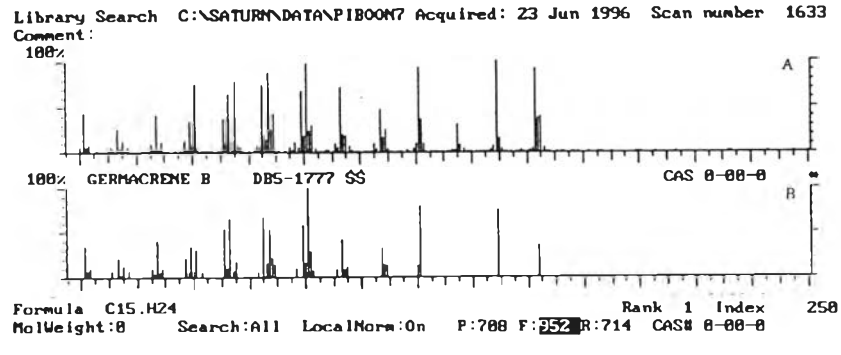


Figure107 Mass spectrum of germacrene B (A) compared with mass spectrum of authentic germacrene B (B) by GC-MS.

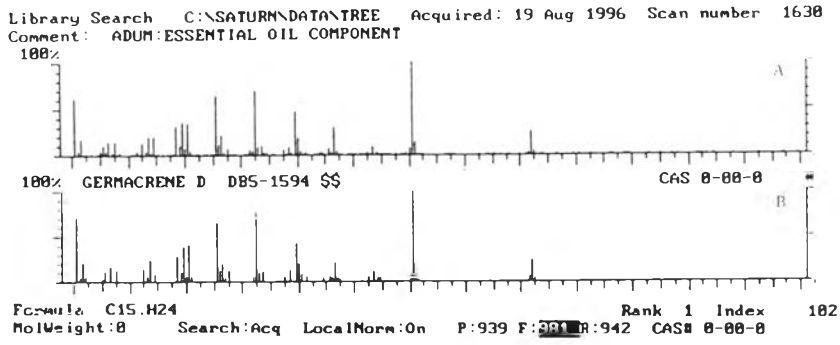


Figure108 Mass spectrum of germacrene D (A) compared with mass spectrum of authentic germacrene D (B) by GC-MS.

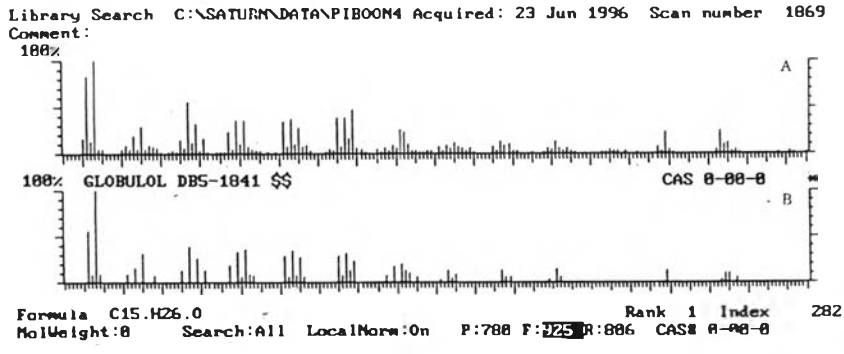


Figure109 Mass spectrum of globulol (A) compared with mass spectrum of authentic globulol (B) by GC-MS.

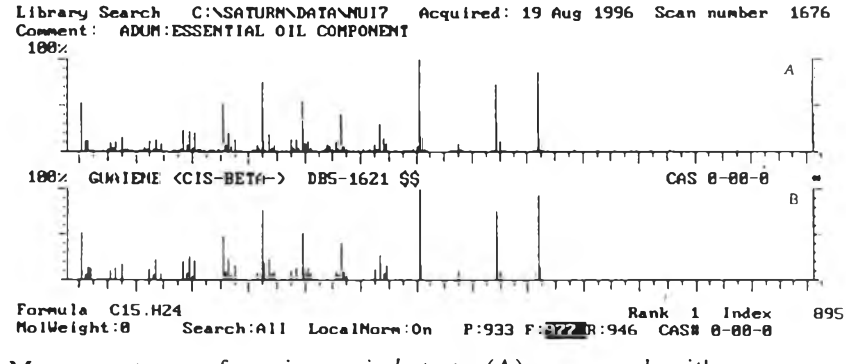


Figure 110 Mass spectrum of guaiene<*cis-beta*-> (A) compared with mass spectrum of authentic guaiene<*cis-beta*-> (B) by GC-MS.

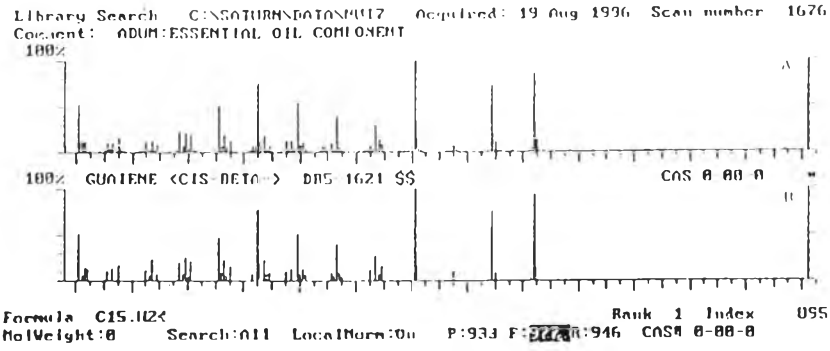


Figure 111 Mass spectrum of guaiene<*trans-beta*-> (A) compared with mass spectrum of authentic guaiene<*cis-beta*-> (B) by GC-MS.

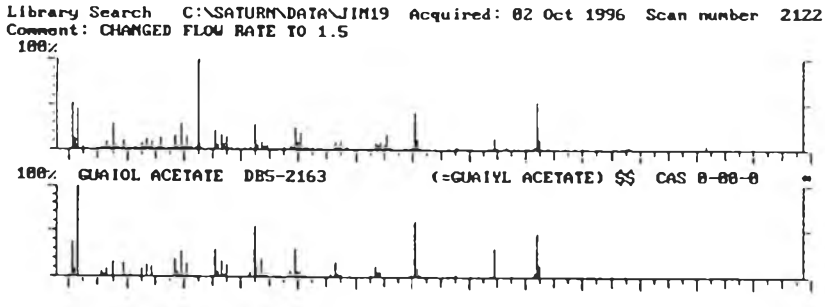


Figure 112 Mass spectrum of guaiol acetate (A) compared with mass spectrum of authentic guaiol acetate (B) by GC-MS.

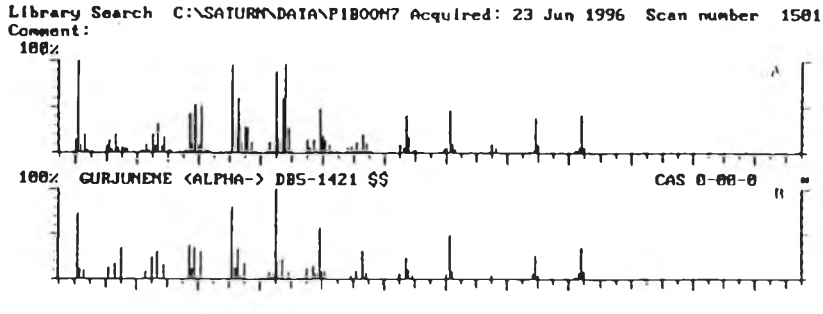


Figure113 Mass spectrum of gurjunene<*alpha*-> (A) compared with mass spectrum of authentic gurjunene <*alpha*-> (B) by GC-MS.

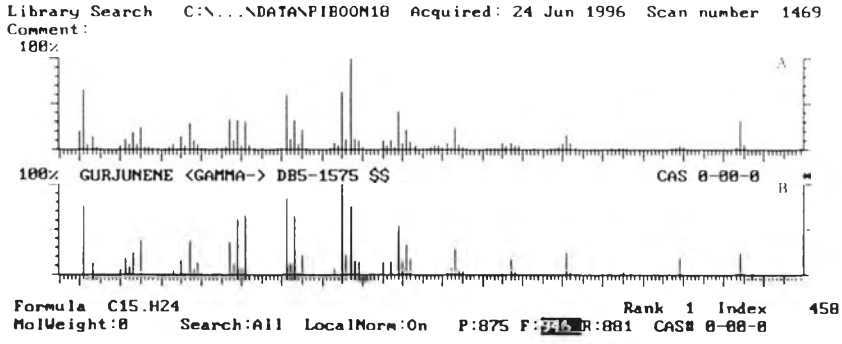


Figure 114 Mass spectrum of gurjunene<*gamma*-> (A) compared with mass spectrum of authentic gurjunene <*gamma*-> (B) by GC-MS

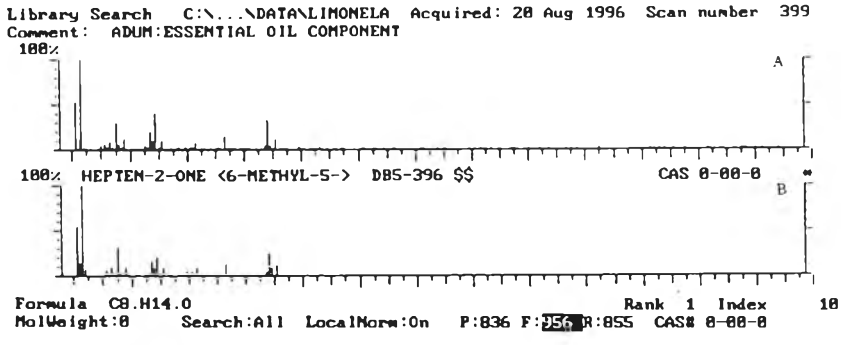


Figure115 Mass spectrum of hepten-2-one<*6-methyl-5*-> (A) compared with mass spectrum of authentic hepten-2-one<*6-methyl-5*-> (B) by GC-MS

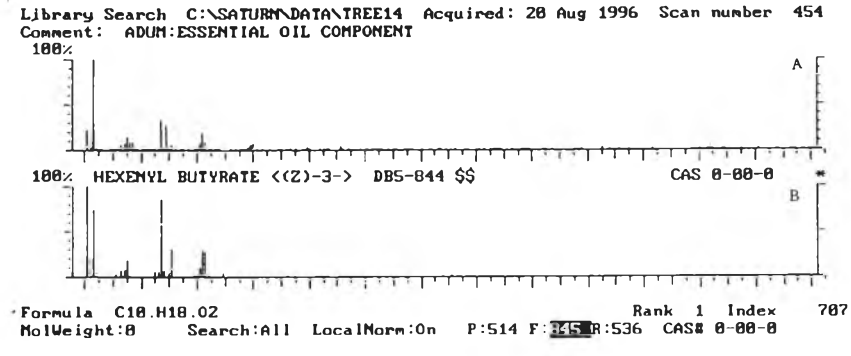


Figure 116 Mass spectrum of hexenyl butyrate<*(Z)*-> (A) compared with mass spectrum of authentic hexenyl butyrate<*(Z)*-> (B) by GC-MS

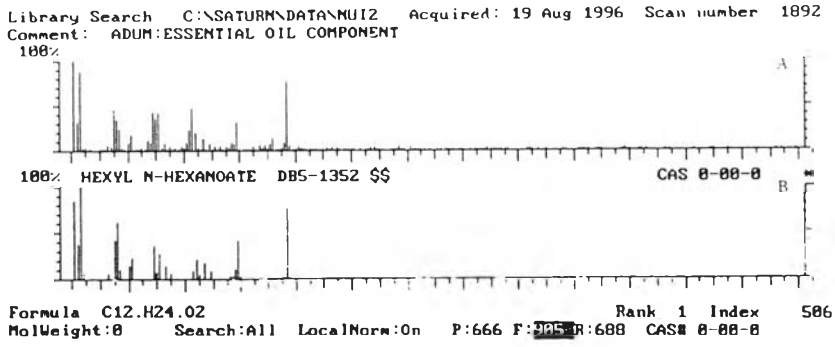


Figure 117 Mass spectrum of hexyl-n-hexanoate<*n*-> (A) compared with mass spectrum of authentic hexyl-n-hexanoate<*n*-> (B) by GC-MS

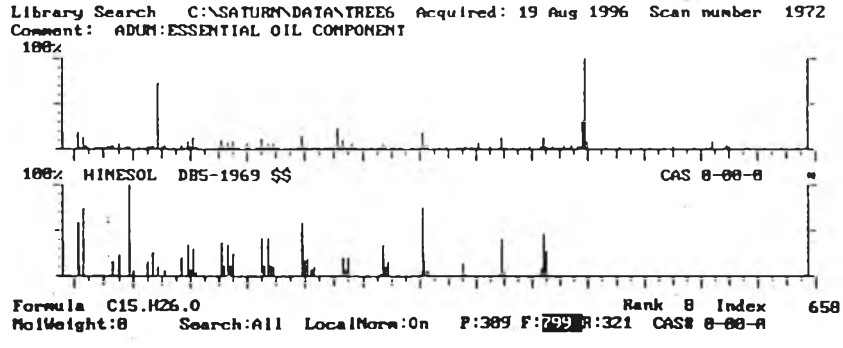


Figure 118 Mass spectrum of hinesol (A) compared with mass spectrum of authentic hinesol (B) by GC-MS

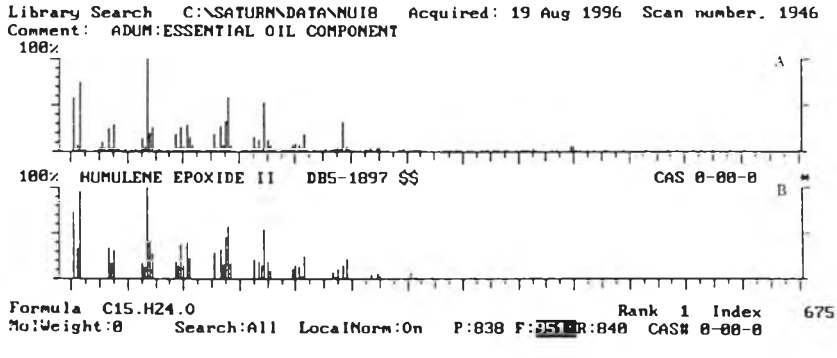


Figure 119 Mass spectrum of humulene epoxide II (A) compared with mass spectrum of authentic humulene epoxide II (B) by GC-MS

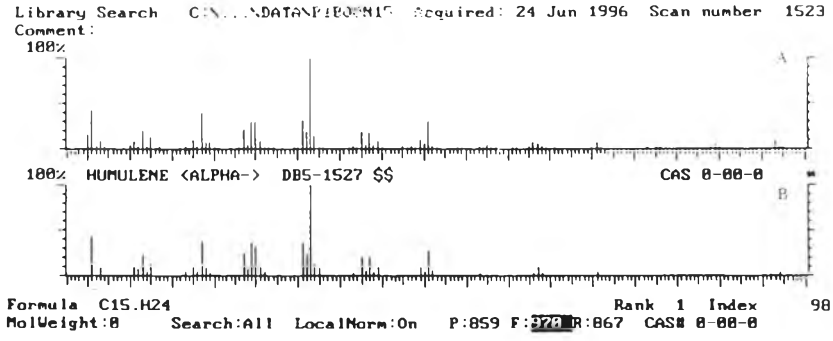


Figure 120 Mass spectrum of humulene <*alpha*-> (A) compared with mass spectrum of authentic humulene <*alpha*-> (B) by GC-MS

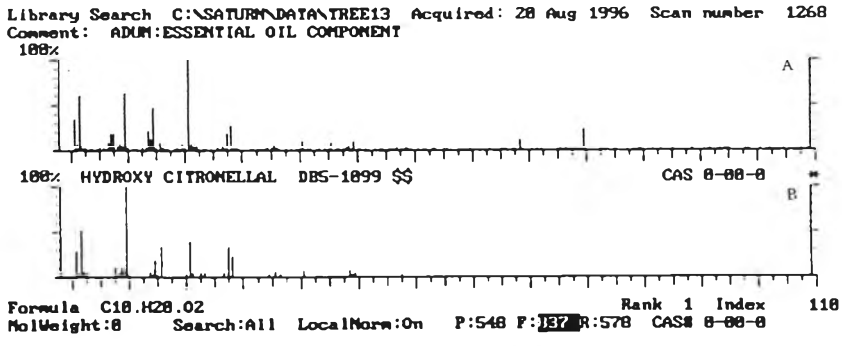


Figure 121 Mass spectrum of hydroxy citronellal (A) compared with mass spectrum of authentic hydroxy citronellal (B) by GC-MS

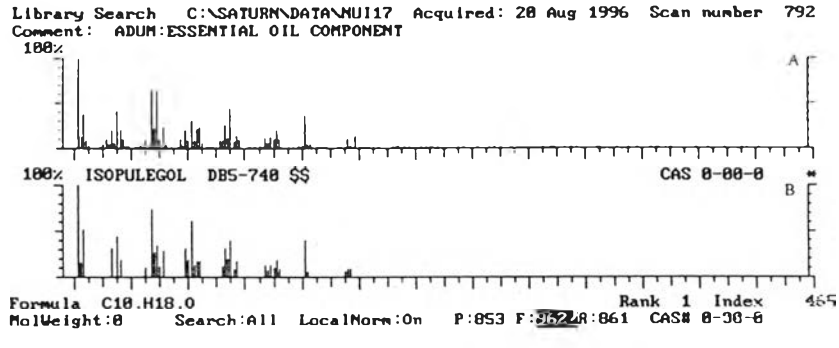


Figure 122 Mass spectrum of isopulegol (A) compared with mass spectrum of authentic isopulegol (B) by GC-MS

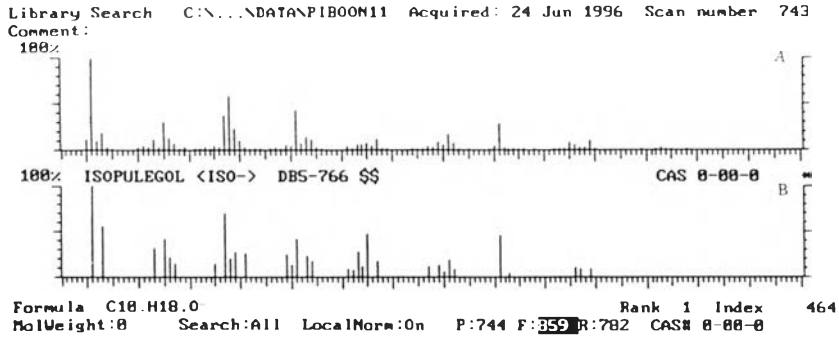


Figure 123 Mass spectrum of isopulegol<iso-> (A) compared with mass spectrum of authentic isopulegol<*iso*-> (B) by GC-MS

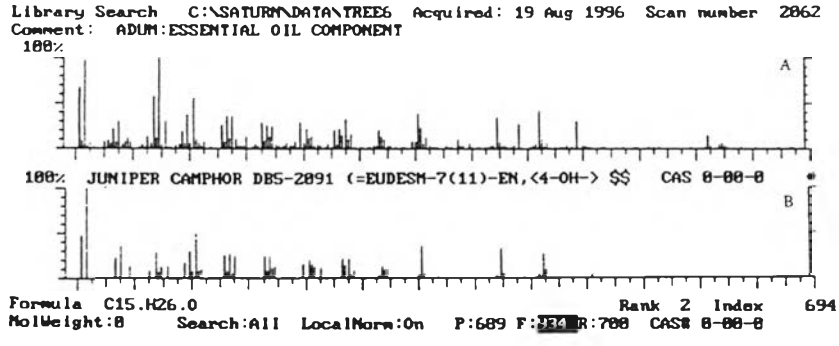


Figure 124 Mass spectrum of juniper camphor (A) compared with mass spectrum of authentic juniper camphor (B) by GC-MS

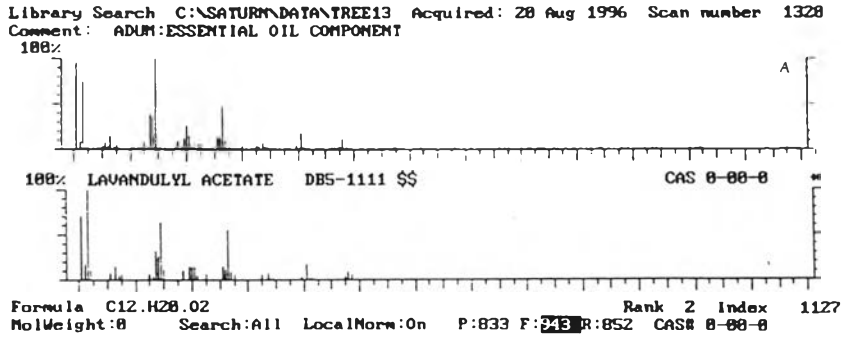


Figure 125 Mass spectrum of lavandulyl acetate (A) compared with mass spectrum of authentic lavandulyl acetate (B) by GC-MS

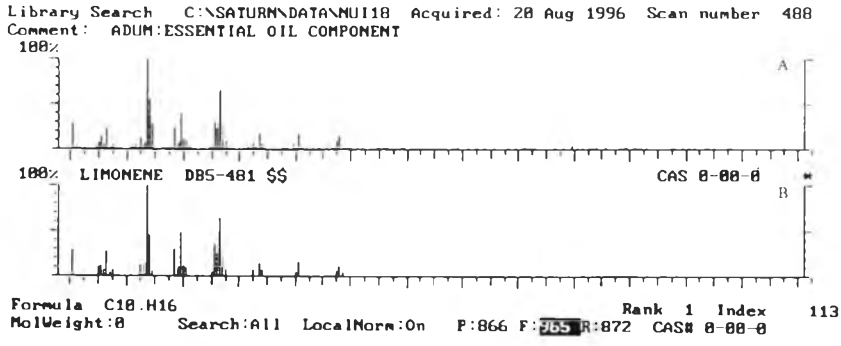


Figure 126 Mass spectrum of limonene (A) compared with mass spectrum of authentic limonene (B) by GC-MS

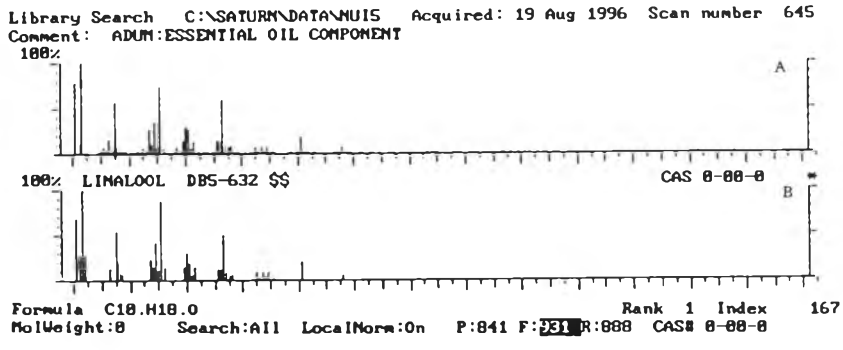


Figure 127 Mass spectrum of linalool (A) compared with mass spectrum of authentic linalool (B) by GC-MS

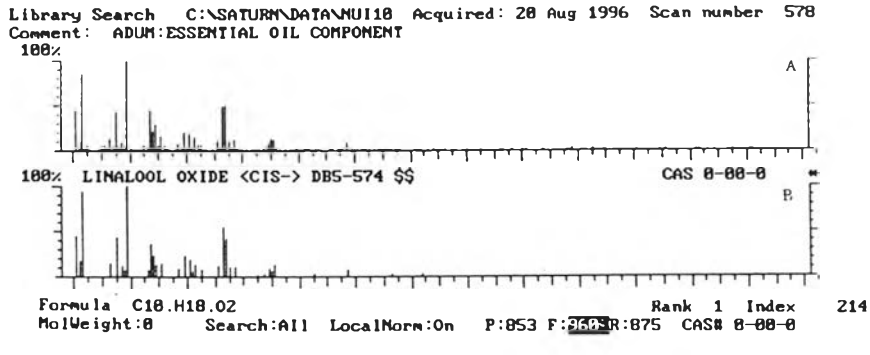


Figure 128 Mass spectrum of linalool oxide (A) compared with mass spectrum of authentic linalool oxide (B) by GC-MS

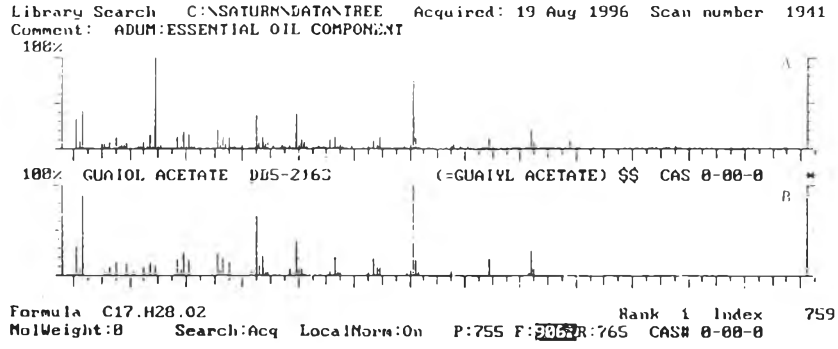


Figure 129 Mass spectrum of longiborneol acetate (A) compared with mass spectrum of authentic longiborneol acetate (B) by GC-MS

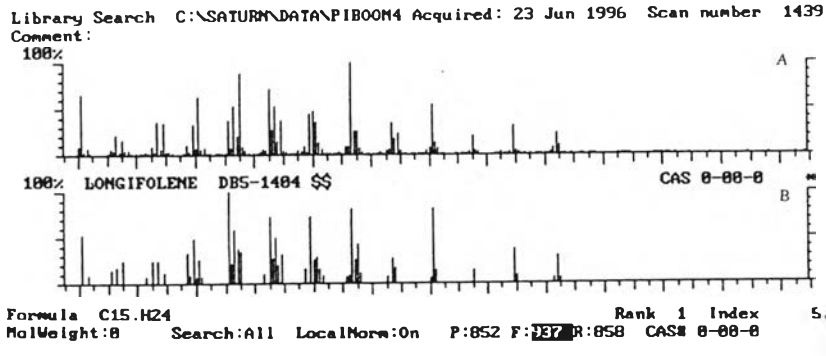


Figure 130 Mass spectrum of longifolene (A) compared with mass spectrum of authentic longifolene (B) by GC-MS

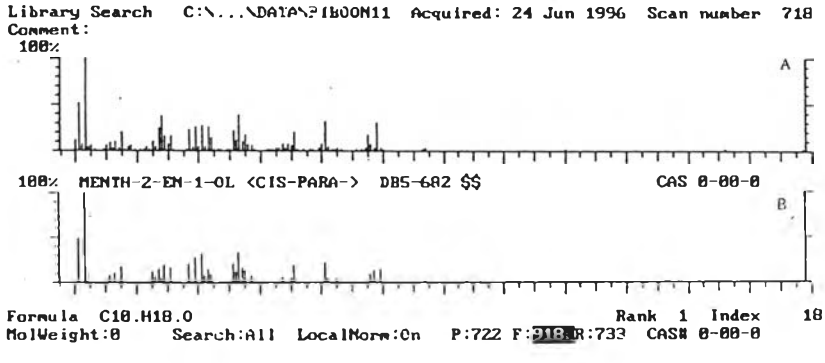


Figure 131 Mass spectrum of menth-2-en-1-ol<*cis-para*-> (A) compared with mass spectrum of authentic menth-2-en-1-ol<*cis-para*-> (B) by GC-MS

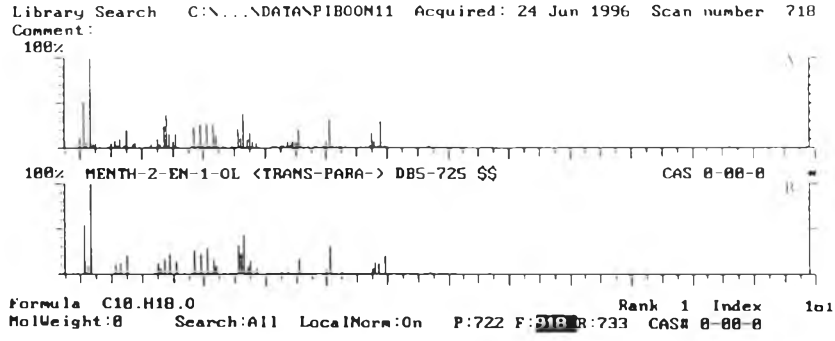


Figure 132 Mass spectrum of menth-2-en-1-ol<*trans-para*-> (A) compared with mass spectrum of authentic menth-2-en-1-ol<*trans-para*-> (B) by GC-MS

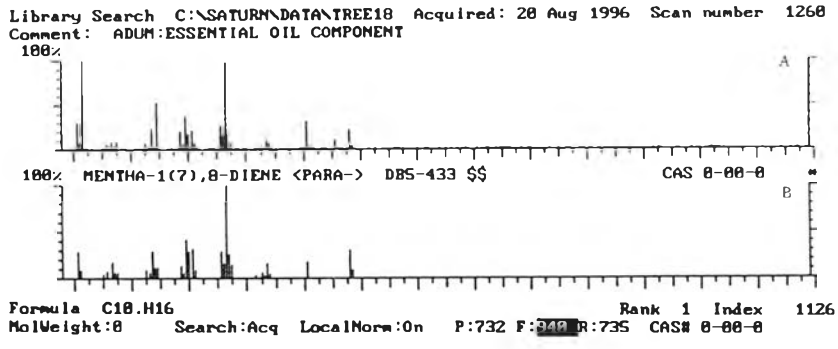


Figure 133 Mass spectrum of mentha-1(7),8-diene<*para*-> (A) compared with mass spectrum of authentic mentha-1(7),8-diene<*para*-> (B) by GC-MS

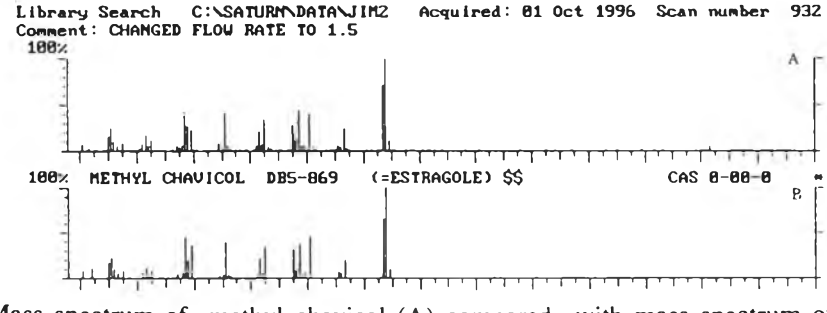


Figure 134 Mass spectrum of methyl chavicol (A) compared with mass spectrum of authentic methyl chavicol (B) by GC-MS

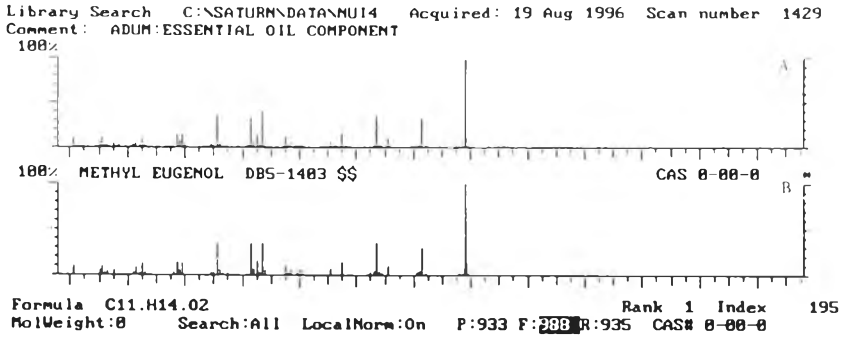


Figure 135 Mass spectrum of methyl eugenol (A) compared with mass spectrum of authentic methyl eugenol (B) by GC-MS

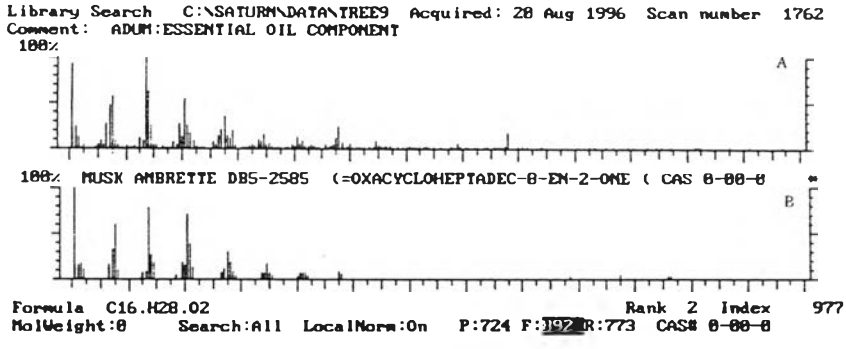


Figure 136 Mass spectrum of musk ambrette (A) compared with mass spectrum of authentic musk ambrette (B) by GC-MS

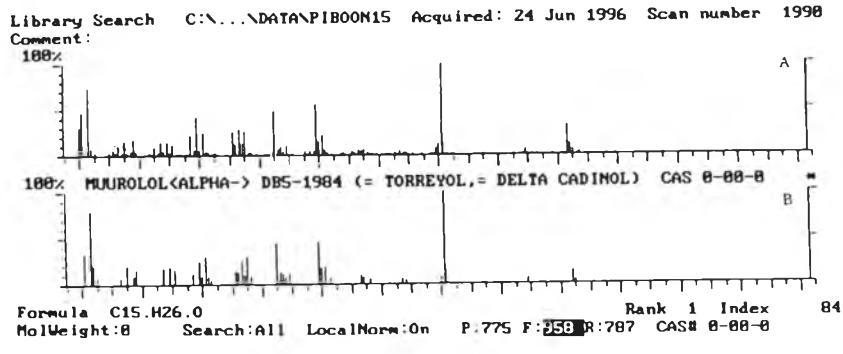


Figure 137 Mass spectrum of muurolol<*alpha*-> (A) compared with mass spectrum of authentic muurolol<*alpha*-> (B) by GC-MS

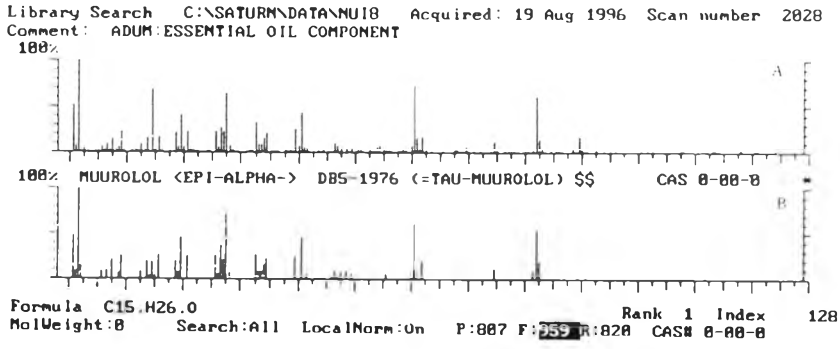


Figure 138 Mass spectrum of muurolol<*Epi-alpha-*> (A) compared with mass spectrum of authentic muurolol<*Epi-alpha-*> (B) by GC-MS

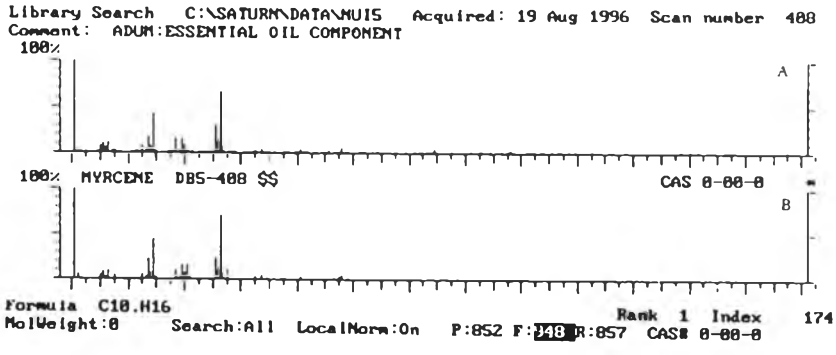


Figure 139 Mass spectrum of myrcene (A) compared with mass spectrum of authentic myrcene (B) by GC-MS

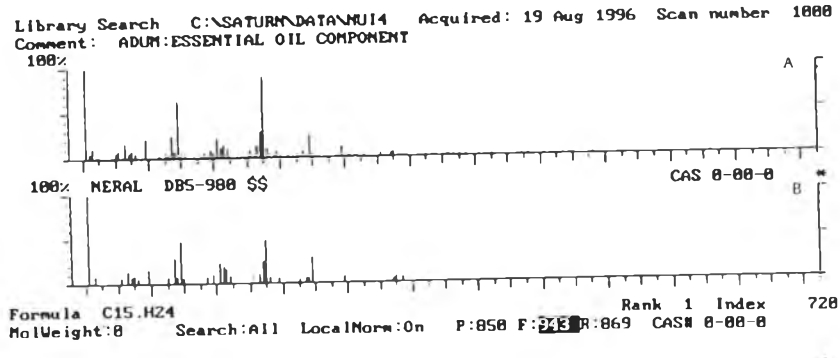


Figure 140 Mass spectrum of neral (A) compared with mass spectrum of authentic neral (B) by GC-MS

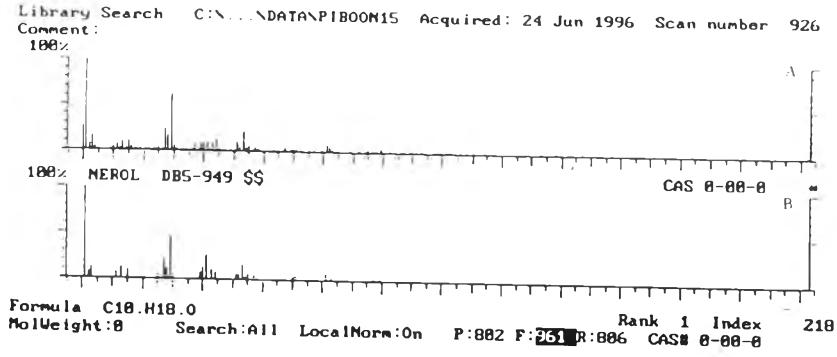


Figure 141 Mass spectrum of nerol (A) compared with mass spectrum of authentic nerol (B) by GC-MS

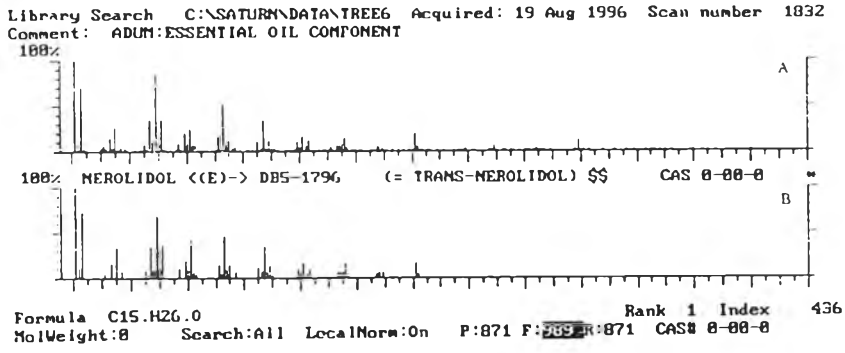


Figure 142 Mass spectrum of nerolidol<*(E)*-> (A) compared with mass spectrum of authentic nerolidol<*(E)*-> (B) by GC-MS

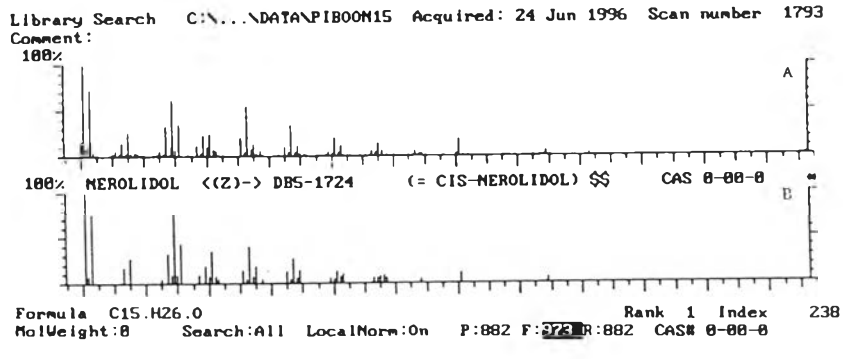


Figure 143 Mass spectrum of nerolidol<*(Z)*-> (A) compared with mass spectrum of authentic nerolidol<*(Z)*-> (B) by GC-MS

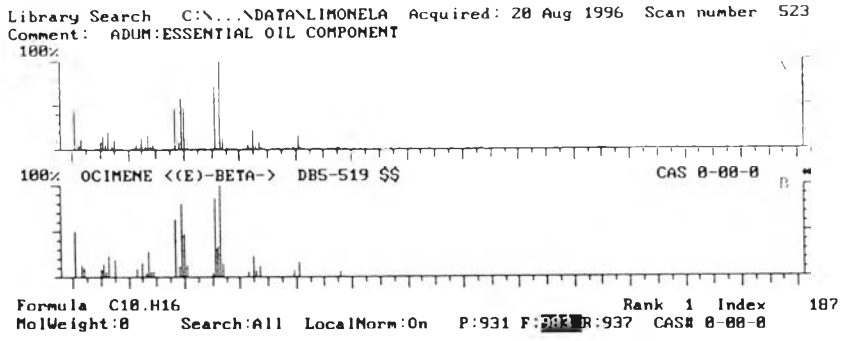


Figure 144 Mass spectrum of ocimene<*(E)-beta->* (A) compared with mass spectrum of authentic ocimene<*(E)-beta->* (B) by GC-MS

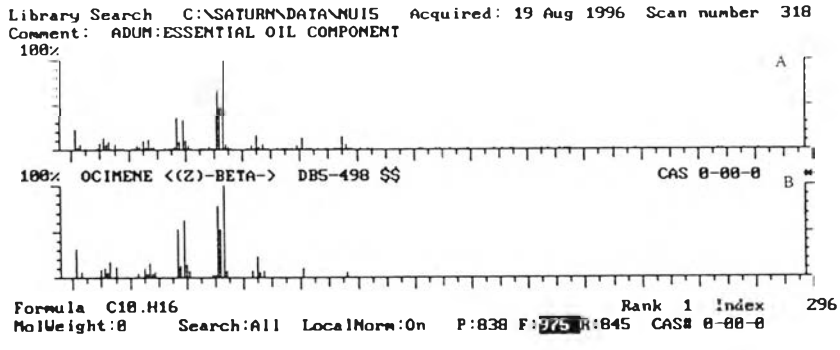


Figure 145 Mass spectrum of ocimene<*(Z)-beta->* (A) compared with mass spectrum of authentic ocimene<*(E)-beta->* (B) by GC-MS

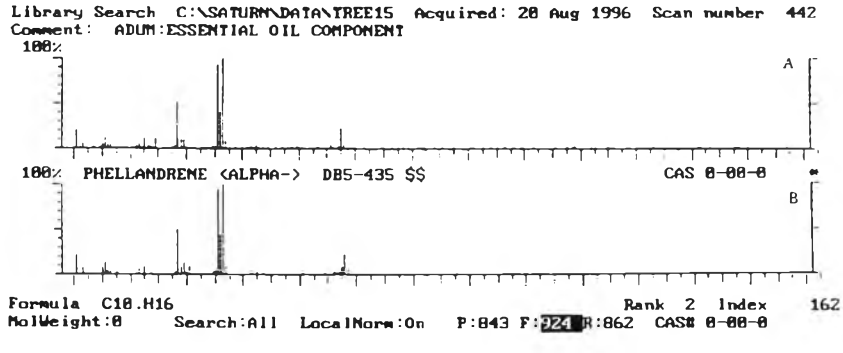


Figure146 Mass spectrum of phellandrene<*alpha->* (A) compared with mass spectrum of authentic phellandrene<*alpha->* (B) by GC-MS

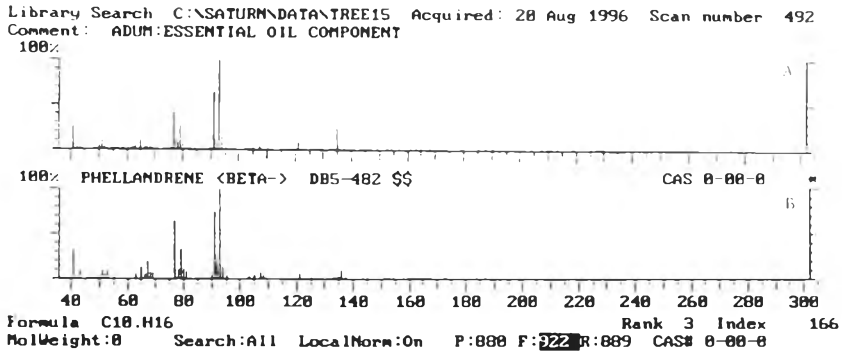


Figure 147 Mass spectrum of phellandrene<*beta*-> (A) compared with mass spectrum of authentic phellandrene<*beta*-> (B) by GC-MS

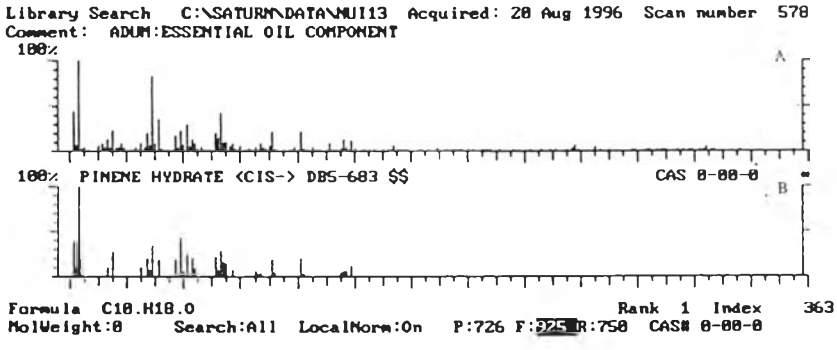


Figure 148 Mass spectrum of pinene hydrate<*cis*-> (A) compared with mass spectrum of authentic pinene hydrate<*cis*-> (B) by GC-MS

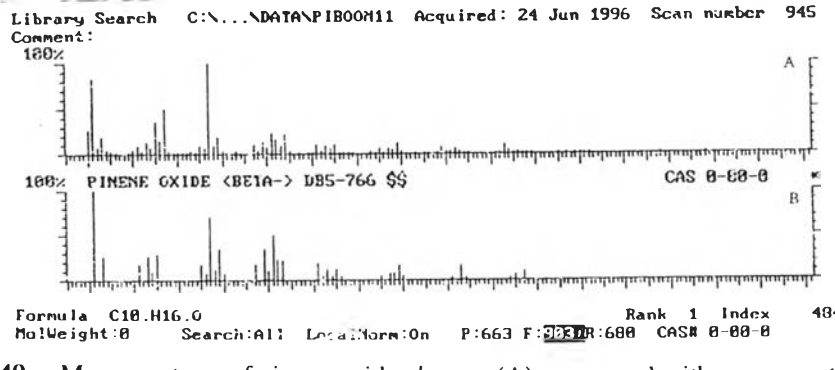


Figure 149 Mass spectrum of pinene oxide<*beta*-> (A) compared with mass spectrum of authentic pinene oxide<*beta*-> (B) by GC-MS

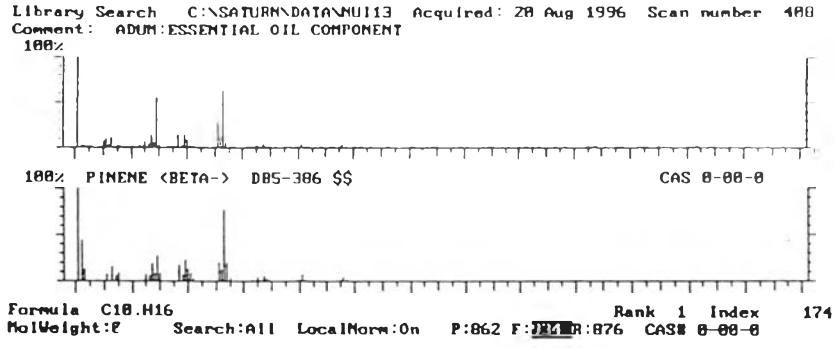


Figure 150 Mass spectrum of pinene <*beta*-> (A) compared with mass spectrum of authentic pinene <*beta*-> (B) by GC-MS

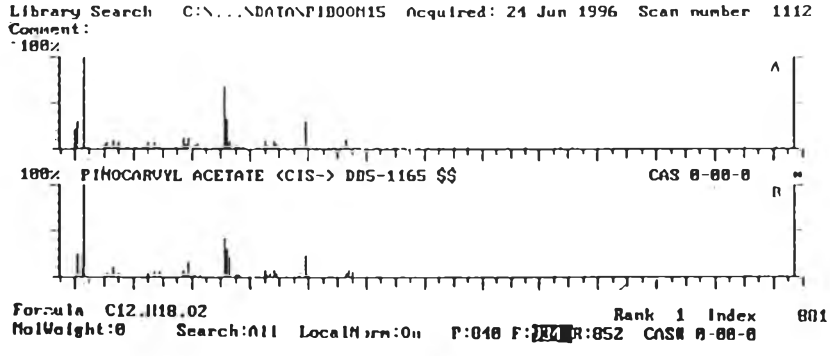


Figure 151 Mass spectrum of pinocarvyl acetate<*cis*-> (A) compared with mass spectrum of authentic pinocarvyl acetate<*cis*-> (B) by GC-MS

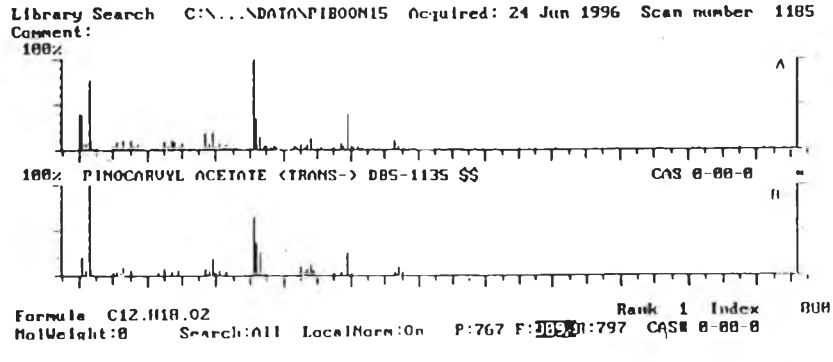


Figure 152 Mass spectrum of pinocarvyl acetate<*trans*> compared with mass spectrum of authentic pinocarvyl acetate<*trans*-> by GC-MS

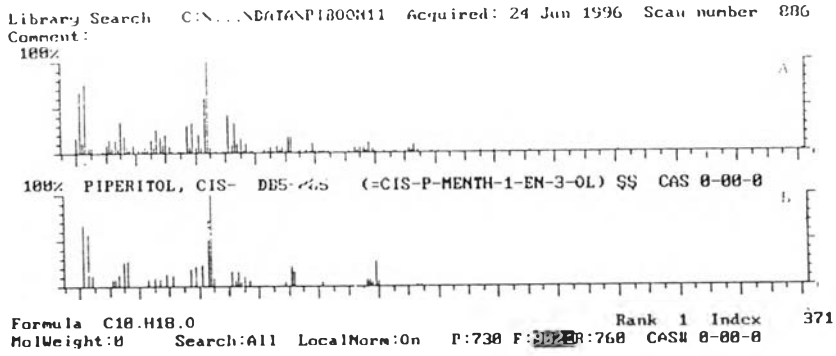


Figure 153 Mass spectrum of piperitol<*cis*-> compared with mass spectrum of authentic piperitol <*cis*->by GC-MS

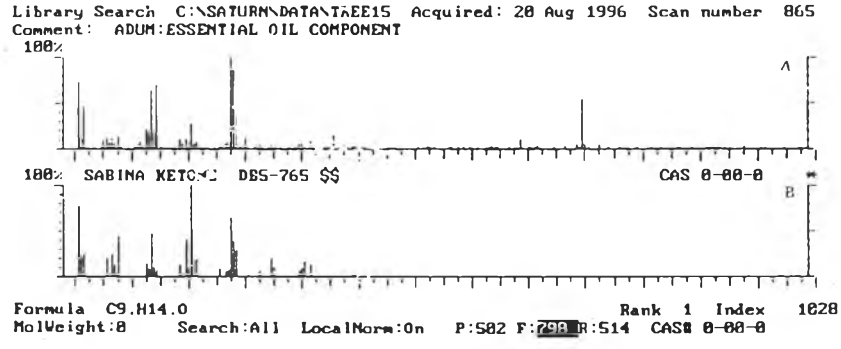


Figure 154 Mass spectrum of sabina ketone compared with mass spectrum of authentic sabina ketone by GC-MS

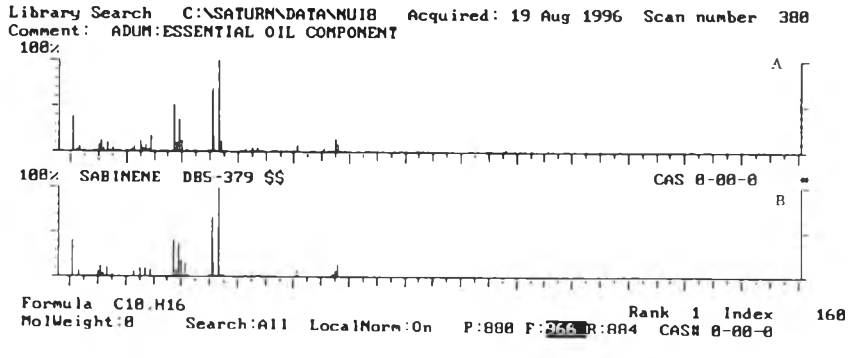


Figure 155 Mass spectrum of sabinene compared with mass spectrum of authentic sabinene by GC-MS

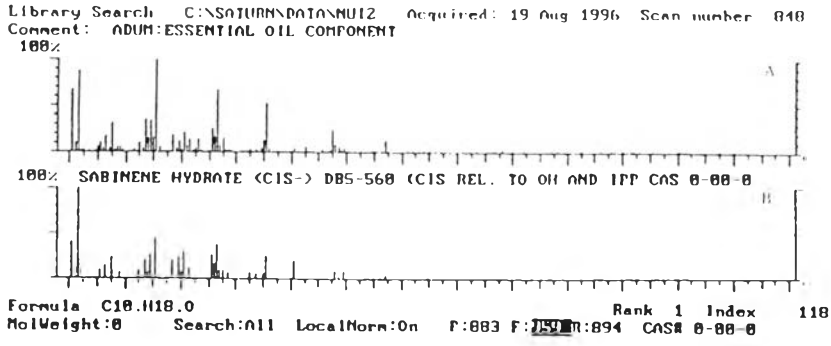


Figure 156 Mass spectrum of sabinene hydrate<*cis*-> compared with mass spectrum of authentic sabinene hydrate<*cis*-> by GC-MS

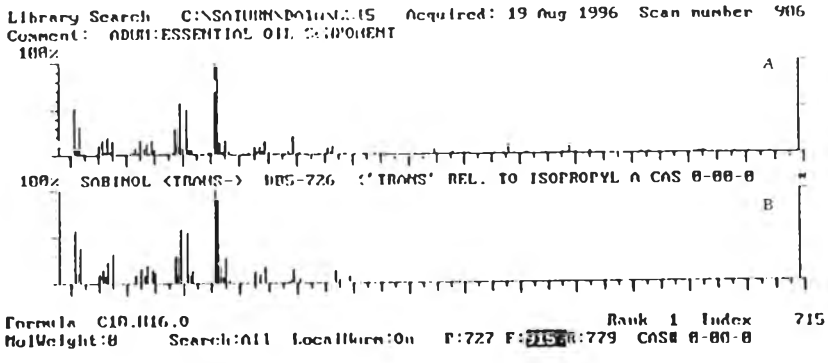


Figure 157 Mass spectrum of sabinol<*trans*> compared with mass spectrum of authentic sabinol <*trans*-> by GC-MS

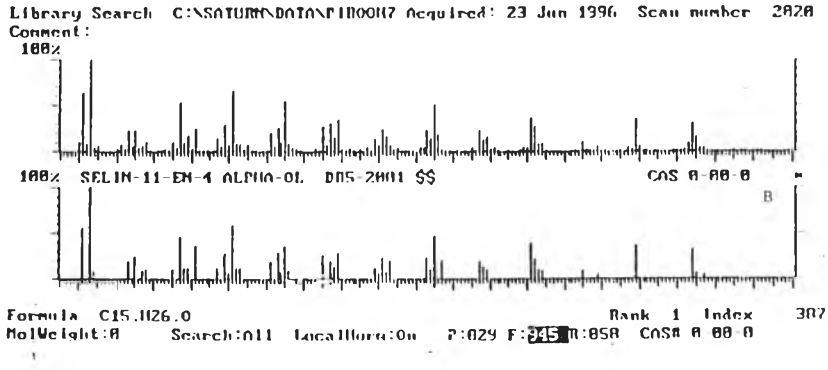


Figure 158 Mass spectrum of selin-11-en-4-alpha-ol compared with mass spectrum of authentic selin-11-en-alpha-4-ol by GC-MS

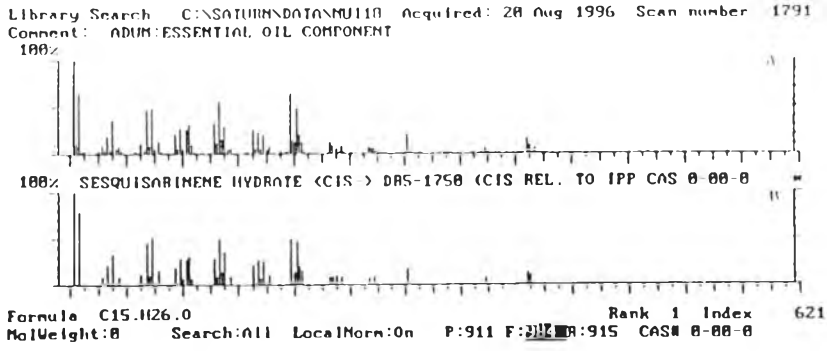


Figure 159 Mass spectrum of sesquisabinene hydrate<*cis*-> compared with mass spectrum of authentic sesquisabinene hydrate<*cis*-> by GC-MS

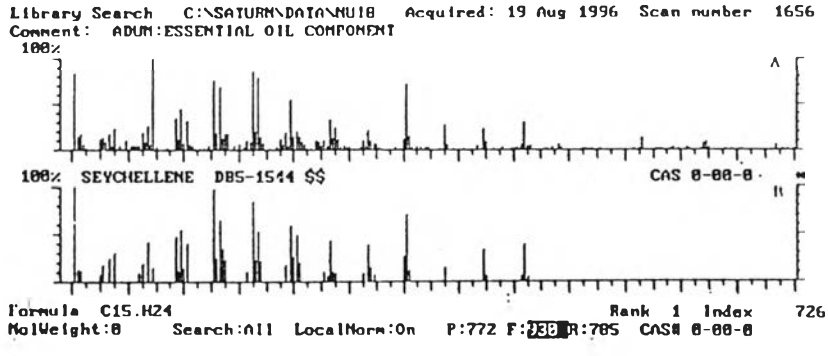


Figure 160 Mass spectrum of seychellene compared with mass spectrum of authentic seychellene by GC-MS

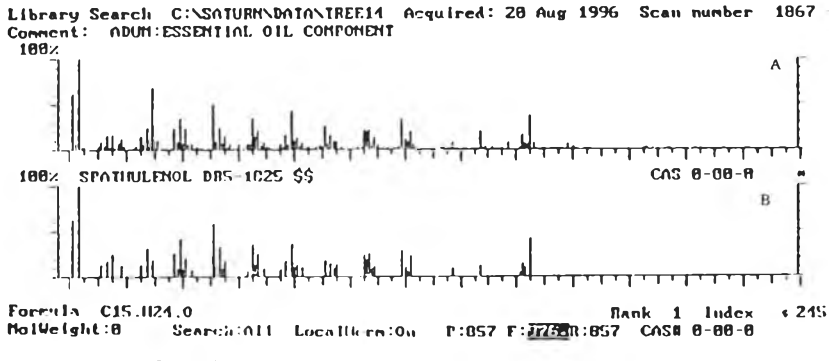


Figure 161 Mass spectrum of spathulenol compared with mass spectrum of authentic spathulenol by GC-MS

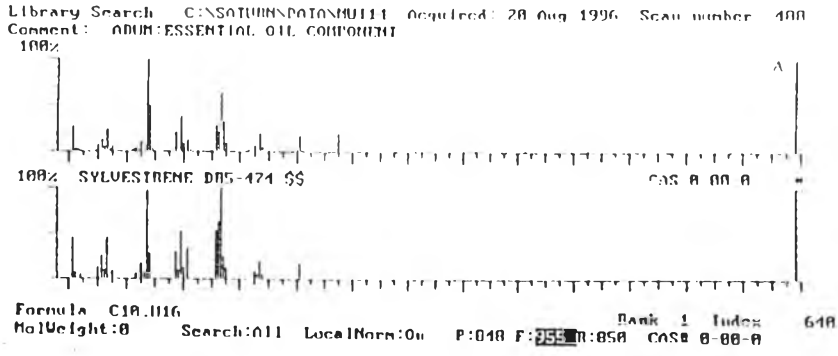


Figure 162 Mass spectrum of sylvestrene compared with mass spectrum of authentic sylvestrene by GC-MS

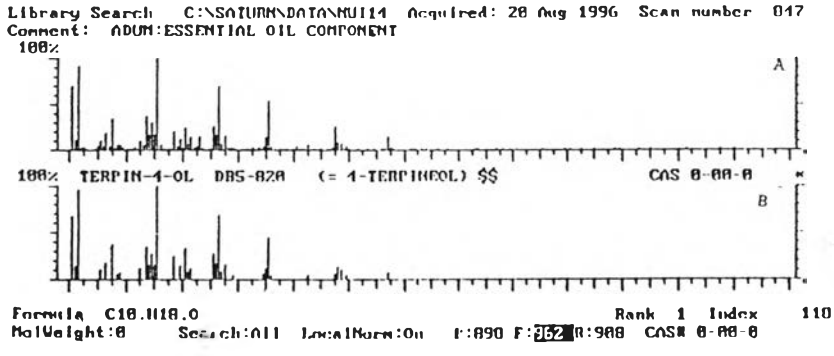


Figure 163 Mass spectrum of terpin-4-ol compared with mass spectrum of authentic terpin-4-ol by GC-MS

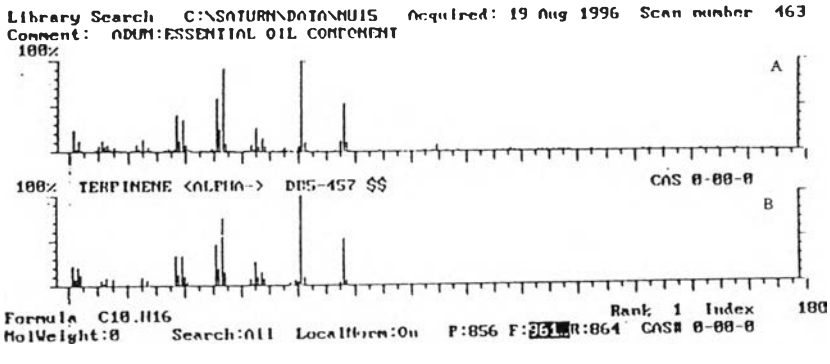


Figure 164 Mass spectrum of terpinene<*alpha*-> compared with mass spectrum of authentic terpinene<*alpha*-> by GC-MS

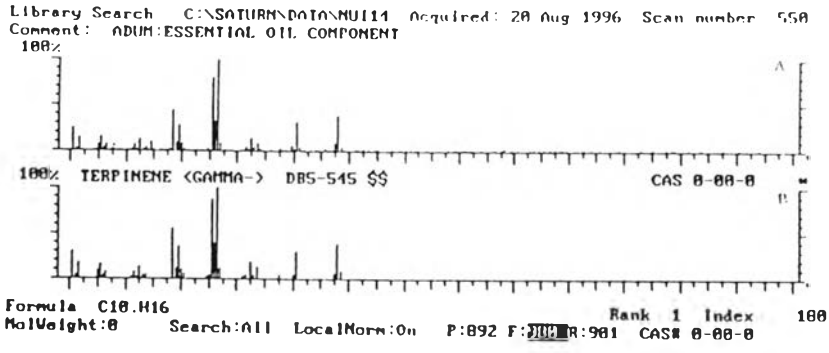


Figure 165 Mass spectrum of terpinene<*gamma*-> compared with mass spectrum of authentic terpinene<*gamma*-> by GC-MS

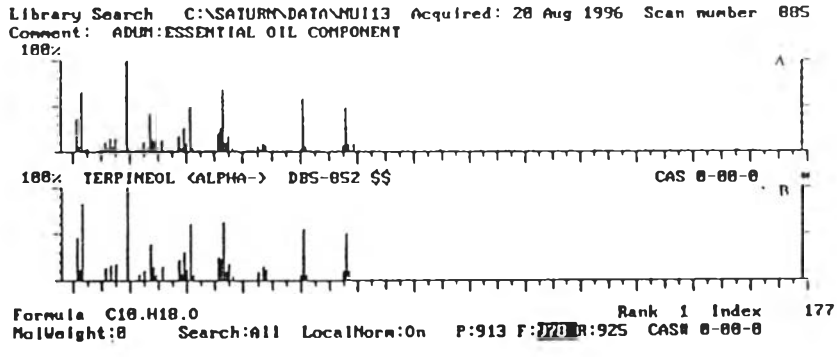


Figure 166 Mass spectrum of terpineol<*alpha*-> compared with mass spectrum of authentic terpineol<*alpha*-> by GC-MS

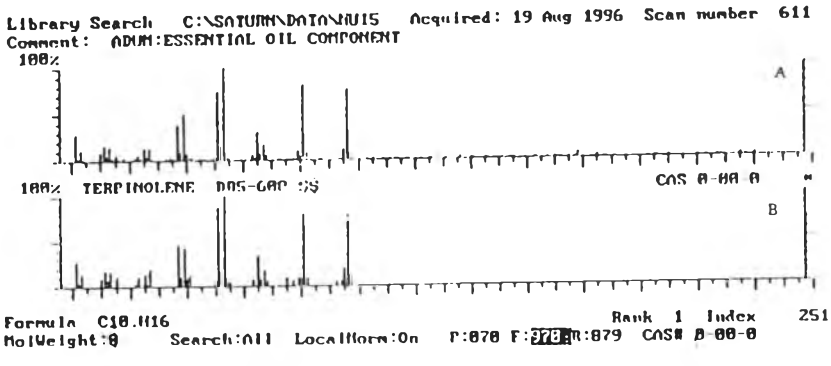


Figure 167 Mass spectrum of terpinolene compared with mass spectrum of authentic terpinolene by GC-MS

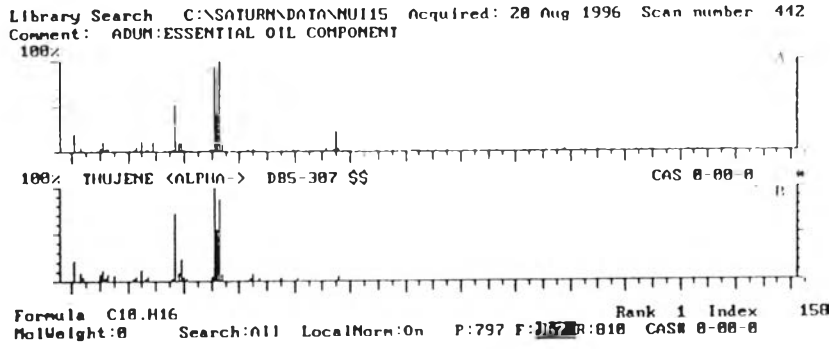


Figure 168 Mass spectrum of thujene<*alpha-*> compared with mass spectrum of authentic thujene <*alpha-*> by GC-MS

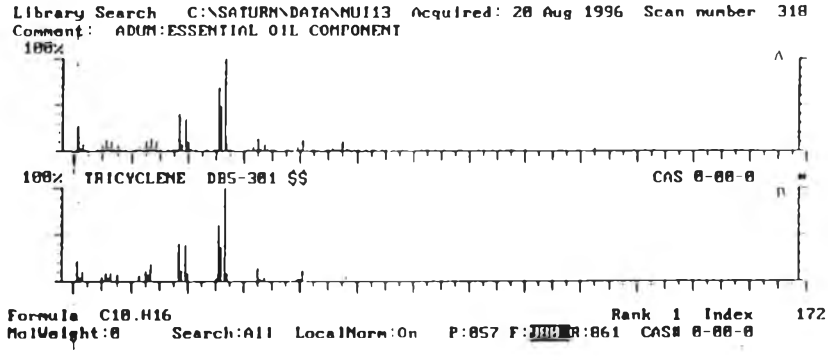


Figure 169 Mass spectrum of tricyclene compared with mass spectrum of authentic tricyclene by GC-MS

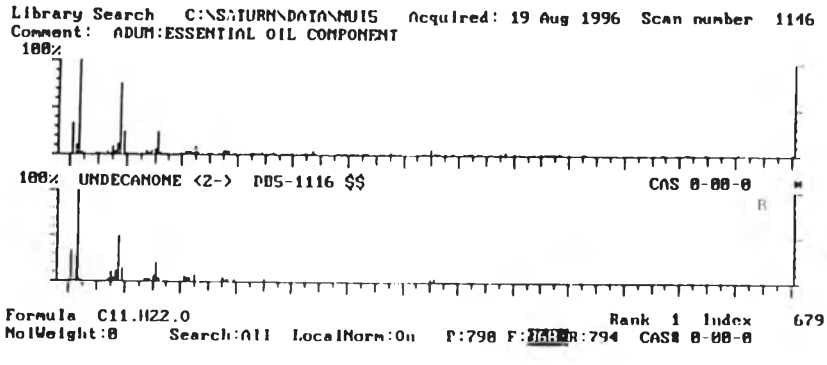


Figure 170 Mass spectrum of undecanone<*2-*> compared with mass spectrum of authentic undecanone<*2-*> by GC-MS

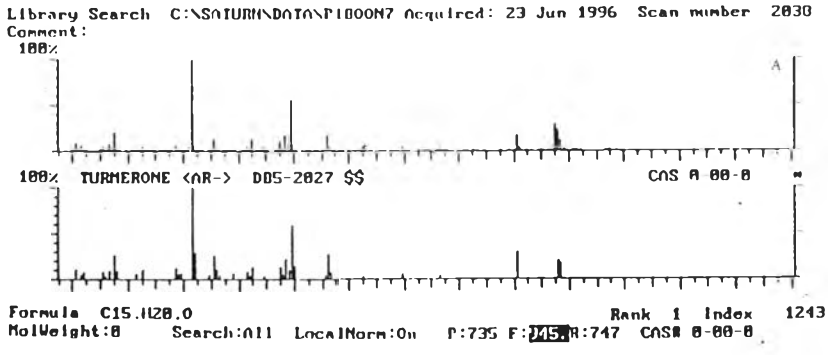


Figure 171 Mass spectrum of tumerone<*ar-*> compared with mass spectrum of authentic tumerone <*ar-*> by GC-MS

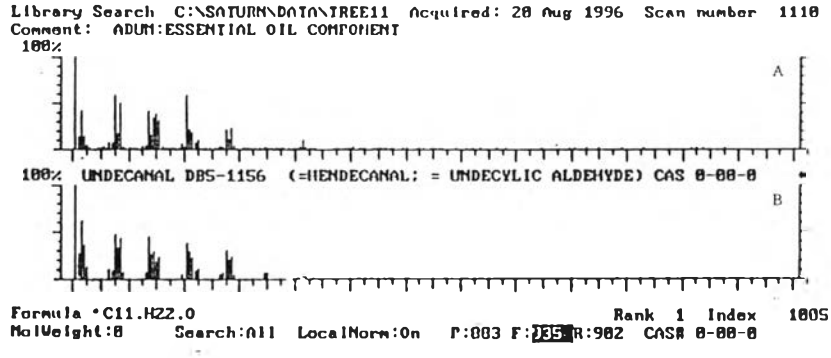


Figure 172 Mass spectrum of undecanal compared with mass spectrum of authentic undecanal by GC-MS

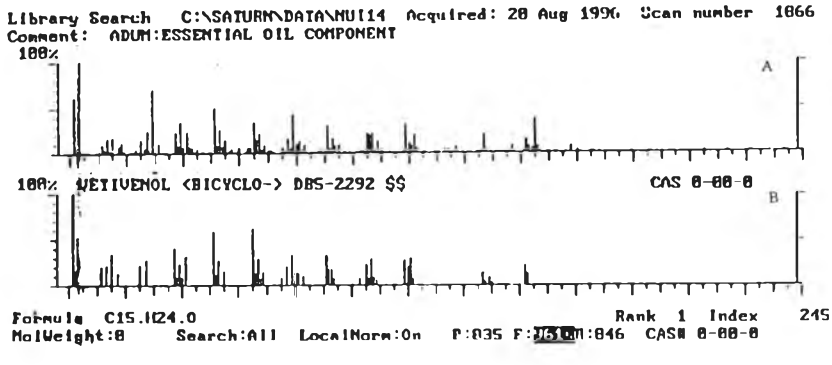


Figure 173 Mass spectrum of vetivenol<*bicyclo-*> compared with mass spectrum of authentic vetivenol<*bicyclo-*>by GC-MS

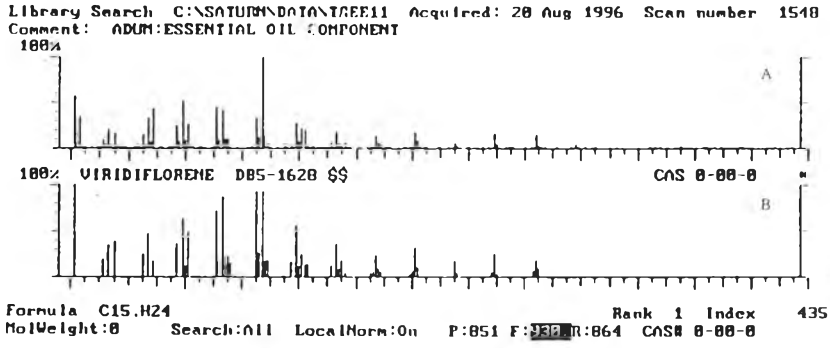


Figure 174 Mass spectrum of viridiflorene compared with mass spectrum of authentic viridiflorene by GC-MS

VITA

Miss Warunee Thamrongvongsawad was born in April 30, 1972 in Nakornratchasima, Thailand. She received her Bachelor of Science in Pharmacy in 1994 from Rangsit University, Pathum Thani, Thailand. At present, she is a faculty member of the Department of Pharmacognosy, Faculty of Pharmacy, Rangsit University, Pathum Thani, Thailand.