SUPPLEMENTARY MATERIAL TO:

Czechowski, F., Polowczyk, M., Simoneit, B. R. T., Grelowski, C. & Hojniak, M., 2023. Geochemical characterization and palaeoenvironmental implications of lipids in Neogene lignites and lignitic shales in NW Poland. *Annales Societatis Geologorum Poloniae*, 93: 447–466. https://doi.org/10.14241/asgp.2023.19

Table S1

The names of the lignite and lignitic shale location and the abbreviation of the borehole sites and their geographic coordinates.

Sample number	Borehole number	Location name	Geographic coordinates of the borehole site		Abbreviation of the borehole name
			Latitude	Longitude	
1	1	Słowenkowo	53°57′32.82″	15°38′32.11″	Śl-3
2	2	Smolne	54°09′16.84″	15°55′47.08″	Do-2
3	3	Grzybnica	54°03′59.87″	16°27′42.10″	Kł-3
4	4	Stanisławka	53°33′06.89″	17°09′58.20″	De-2
5	5	Osowiec	53°25′32.89″	17°13′33.22″	Li-1
6	6	Zielin	52°47′21.09″	14°35′00.98″	Zi-1
7	7	Barnówko	52°46′31.51″	14°49′10.20″	Bu-3
8	8	Barnówko	52°47′18.09″	14°49′31.49″	Bu-6
9	9	Dolsk	52°47′44.38″	14°49′57.86″	Bu-7
10	10	Dolsk	52°47′36.67″	14°50′29.21″	Bu-9
11a	11	Gajewo	52°48′24.44″	14°51′53.55″	Ga-1
11b	11	Gajewo	52°48′24.44″	14°51′53.55″	Ga-1
12	12	Mosina	52°46′19.17″	14°54′55.96″	Lu-3k
13a	13	Józefowo	52°26′18.58″	16°11′25.75″	Lw-2k
13b	13	Józefowo	52°26′18.58″	16°11′25.75″	Lw2k
13c	13	Józefowo	52°26′18.58″	16°11′25.75″	Lw-2k
14	14	Stary Gołębin	52°04′50.87″	16°46′29.64″	Gor-1
15a	15	Słonin	52°06′35.45″	16°43′58.30″	Gor-3
15b	15	Słonin	52°06′35.45″	16°43′58.30″	Gor-3
16a	16	Radzewo	52°12′36.82″	17°00′20.40″	Radz-2
16b	16	Radzewo	52°12′36.82″	17°00′20.40″	Radz-2
16c	16	Radzewo	52°12′36.82″	17°00′20.40″	Radz-2
17a	17	Polesie	52°08′43.44″	17°08′10.85″	Ka-14
17b	17	Polesie	52°08′43.44″	17°08′10.85″	Ka-14
18a	18	Konarzyce	52°04′35.88″	17°09′27.65″	Ks. Wl-1
18b	18	Konarzyce	52°04′35.88″	17°09′27.65″	Ks. Wl-1
19	19	Świączyń	52°05′36.52″	17°16′52.96″	So-7
20	20	Wolica Nowa	52°04′40.94″	17°27′35.64″	Radl-17
21a	21	Wolica Kozia	52°04′39.98″	17°26′42.32″	Radl-19
21b	21	Wolica Kozia	52°04′39.98″	17°26′42.32″	Radl-19
22	22	Parzewnia	52°02′12.91″	17°33′24.25″	Radl-24
23	23	Mieszków	52°01′24.26″	17°27′08.49″	Kl-10
24	24	Jedlec	51°50′16.89″	17°58′55.14″	Goł-2

Table S2

Relative concentrations (relative %) of polycyclic aromatic hydrocarbons in the samples.

Sample number	phenanthrene	fluoranthene	pyrene	benz[a]anthracene	chrysene	benzo[b+k]fluoranthenes	benzo[e]pyrene	benzo[a]pyrene	perylene	MPI-1[a]
1	15.0	nd	nd	nd	nd	nd	nd	nd	100	–
2	3.0	nd	nd	nd	nd	7.3	2.0	1.0	100	–
3	tr	nd	nd	nd	nd	nd	nd	nd	100	0.24
4	tr	nd	nd	nd	nd	nd	nd	nd	tr	0.46
5	4.8	nd	nd	nd	nd	5.7	2.0	1.0	100	0.36
6	99.7	nd	nd	nd	nd	nd	nd	nd	100	–
7	1.0	1.4	1.0	nd	nd	11.7	0.7	0.7	100	–
8	13.5	13.9	nd	6.5	8.7	26.5	10.4	10.2	100	–
9	4.5	7.6	2.4	nd	nd	2.3	0.5	0.5	100	0.26
10	2.1	4.3	nd	1.8	3.4	10.2	2.0	3.0	100	–
11a	4.7	nd	nd	nd	nd	20.7	6.1	1.9	100	–
11b	4.0	3.1	nd	2.0	3.0	6.4	3.0	1.6	100	–
12	3.8	3.7	nd	1.0	4.0	22.9	7.2	6.1	100	–
13a	57.8	25.4	28.5	nd	nd	nd	nd	nd	100	0.16
13b	2.4	3.4	2.5	0.5	1.7	1.0	nd	nd	100	0.25
13c	tr	nd	nd	nd	nd	2.9	nd	nd	100	–
14	8.2	27.4	5.2	1.7	6.3	5.7	5.6	4.4	100	0.32
15a	80.1	100	92.0	6.2	16.1	4.9	nd	nd	4.3	0.17
15b	42.9	20.2	27.6	1.0	1.2	1.6	5.0	3.0	100	0.23
16a	2.7	2.0	2.5	nd	nd	1.1	nd	nd	100	0.21
16b	0.8	nd	nd	nd	nd	6.2	nd	nd	100	–
16c	0.7	nd	nd	nd	nd	1.0	nd	nd	100	–
17a	5.1	4.5	nd	nd	nd	8.4	3.3	6.3	100	–
17b	5.2	7.7	nd	nd	nd	44.4	19.0	12.5	100	–
18a	31.6	9.2	9.4	4.3	9.1	4.2	nd	nd	100	–
18b	100	12.5	5.4	nd	nd	9.1	3.0	2.0	84.3	0.14
19	100	36.2	41.2	1.5	4.0	3.4	nd	nd	49.8	–
20	tr	nd	nd	nd	nd	5.1	nd	nd	100	–
21a	7.1	24.3	nd	6.3	15.2	35.6	10.2	4.9	100	–
21b	13.7	19.7	24.2	1.1	3.5	3.7	1.0	0.5	100	0.30
22	tr	nd	nd	nd	nd	1.2	0.5	0.6	100	–
23	11.2	12.1	2.3	nd	nd	2.3	0.5	0.5	100	0.16
24	100	17.4	4.6	nd	nd	10.1	1.1	1.3	23.8	0.18

tr – traces, nd – not detected

[a] MPI-1 = 1.5x(2-methylphenanthrene + 3-methylphenanthrene)/(phenanthrene + 1-methylphenanthrene + 9-methylphenanthrene) from *m/z* = 192, thermal maturity parameter (Radke *et al.*, 1986).

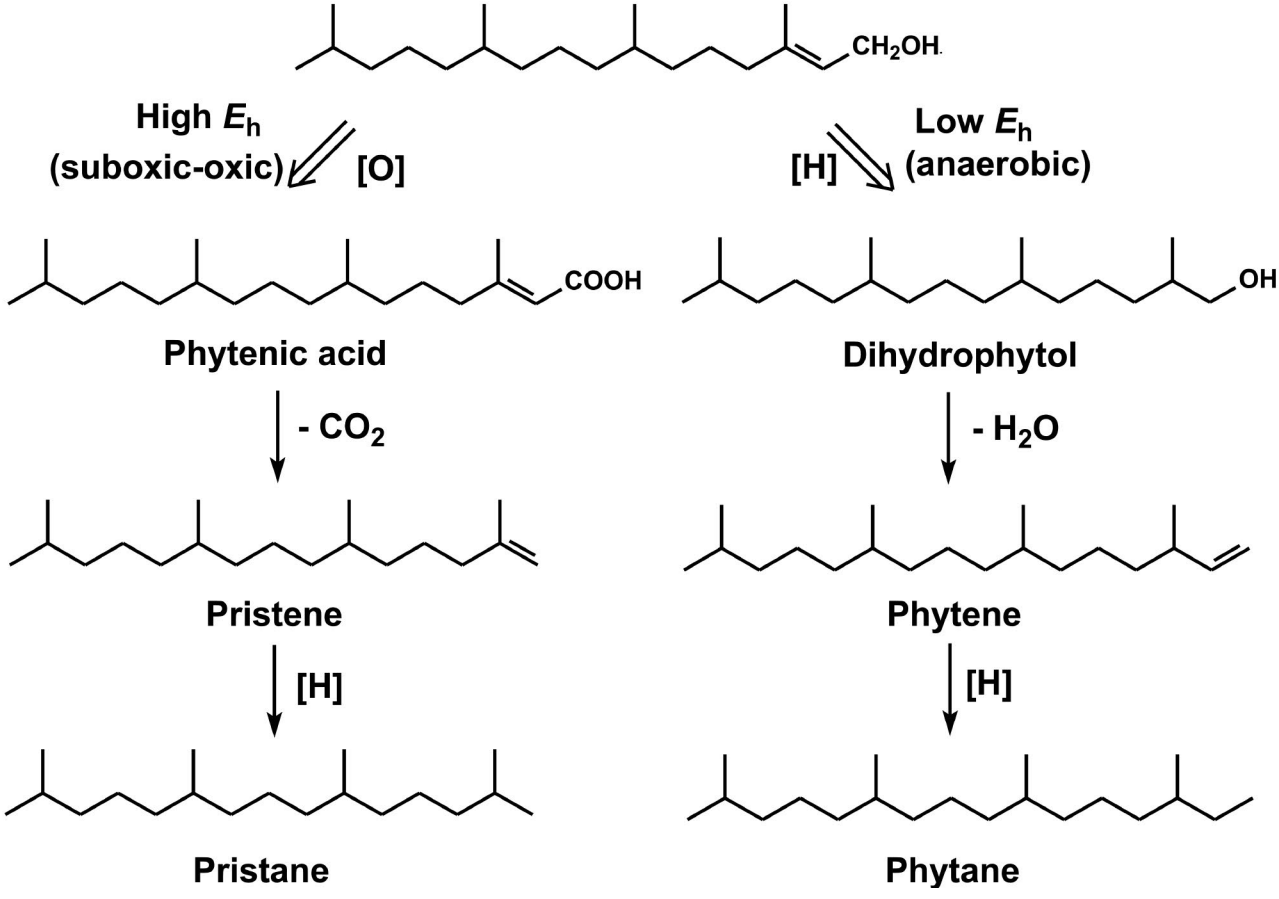

Fig. S1. Diagenetic pathways of pristane and phytane generation from chlorophyll phytol (modified after Peters *et al.*, 2005).

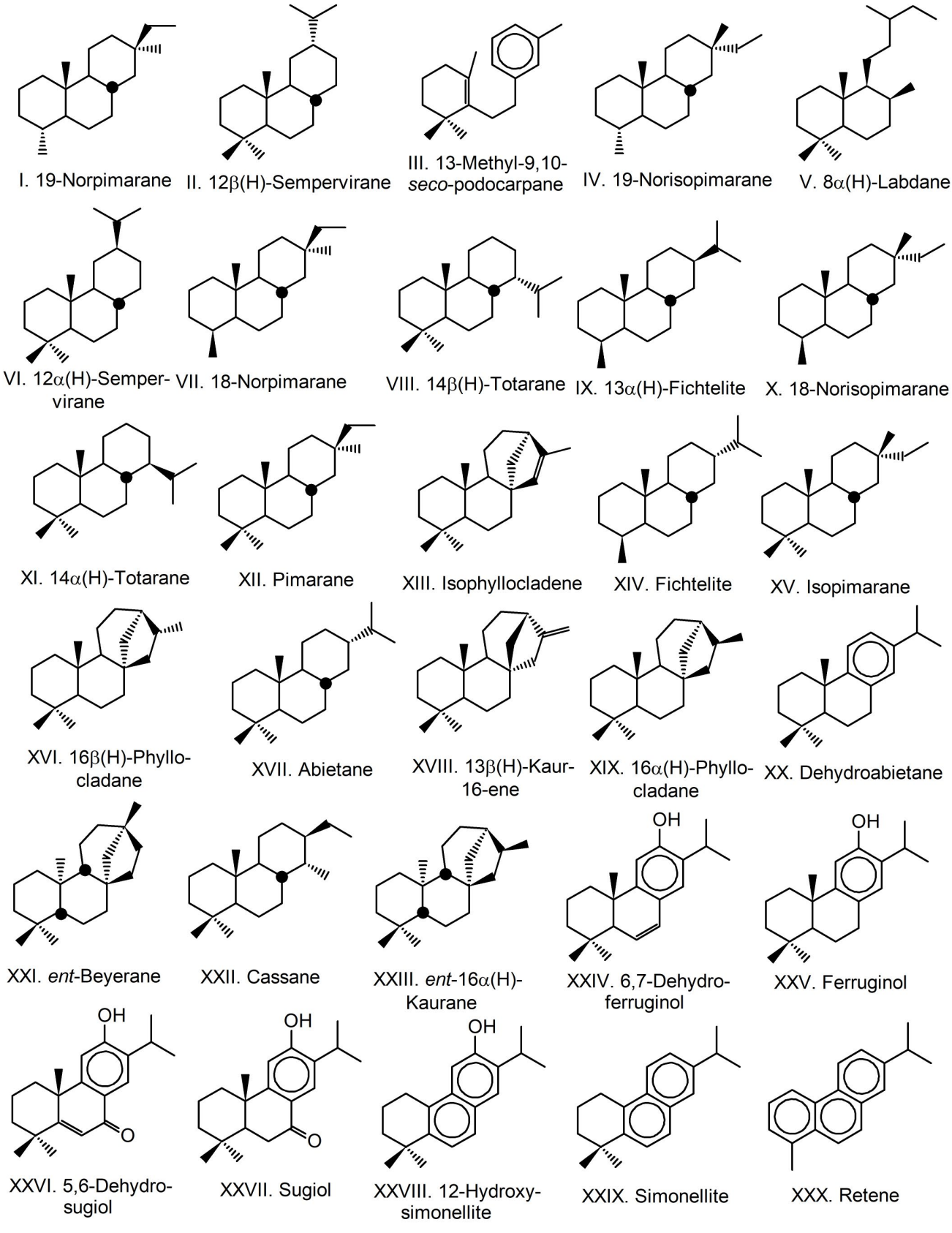

Fig. S2. Chemical structures of the diterpenoids cited in the text.

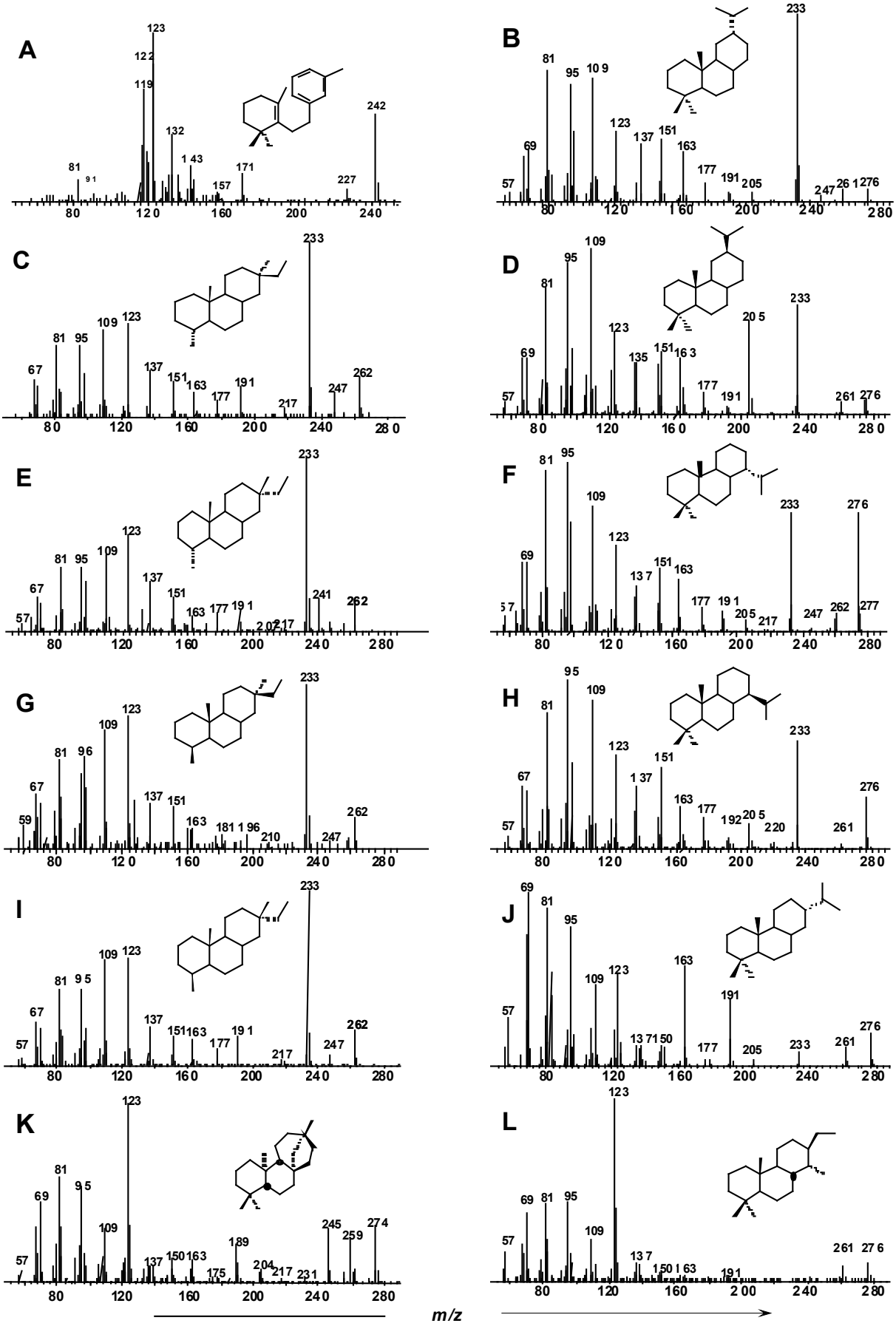

Fig. S3. Mass spectra of diterpanes and a *seco*-derivative. **A**. 13-methyl-9,10-*seco*-podocarpane (III). **B**. 12b(H)-sempervirane (II). **C**. 19-norpimarane (I). **D**. 12a(H)-sempervirane (VI). **E**. 19-norisopimarane (IV). **F**. 14b(H)-totarane (VIII). **G**. 18-norpimarane (VII). **H**. 14a(H)-totarane (XI). **I**. 18-norisopimarane (X). **J**. Abietane (XVII). **K**. *Ent*-beyerane (XXI). **L**. Cassane (XXII).