**Supplementary file (S2)**: All analyzed specimens with respective chemotypes.

***Usnea angulata* Ach.**

**Analyzed specimen:** THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, 1131 m.a.s.l., 7,45462, 125,23664 (Locality Code: P58), beginning of trail to Epol Waterfall, party down, in fallen branch, 28-Dec-2019, A. Gerlach (With M. Dal Forno, J. Nobleza) AG 2019/954 (G).

**Additional analyzed specimen**: *Usnea angulata*. PERU. Cusco, Cordillera Vilcabamba, santuraio histórico de Machu Picchu, 2728 m.a.s.l., 13º11´17.8´´S, 72º32, muros de piedras de las ruinas, 20-Oct-2007, *C. Truong et al. 690* (G, DNA u85).

***Usnea baileyi* (Stirt.) Zahlbr.**

**Analyzed specimens**:

Norstictic acid, ± salazinic acid, ± zeorin (Rf 5-6/3/5-6 orange-brown after charring), ± protocetraric acid (trace)

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District, Davao City, Baganihan, Marilog Forest Reserve, 1227 m.a.s.l., 7,45938,125,25106 (locality code: P47), 26-Dec-2019, *A. Gerlach* (with M. Dal Forno, J. Nobleza), AG 2019/893a (BRIT); ibid, ipse, AG 2019/895c (PNH); ibid (locality code: P56), 27-Dec-2019, ipse AG 2019/946a ibid, 1279 m. alt., 7,48936, 125,25365, 29-Dec-19, ipse AG 2019/981b, (P70); ibid (locality code: P72), 29-Dec-19, ipse AG 2019/995a; ibid, 1184 m.a.s.l., (locality code: P81), trail with native plants, 30-Dec-2019, ipseAG 1012a. **Negros**, Negros Oriental, Dumaguete City: Taclobo, Larena Drive: Balinsasayao Twin Lakes Natural Park, Fernery Behind Restaurant, 909 m.a.s.l., 9.36083, 123.17846 (Locality Code: P19) Planted Edible Ferns And Coconut Palms, in Coconut Tree, 12-Dec-2019, M. Dal Forno (with A. Gerlach & A.D. Nietes) 3493 (BRIT), ibid, ipse M. Dal Forno 3495 (BRIT). Ibid, 1337 m.a.s.l., 9,24099, 123,11667, open area close to camping site, tree with *Usneas* Jaime climbed (locality code: P33), 17-Dec-2019, *A. Gerlach* (with M. Dal Forno, A. D. Nietes) AG 2019/845 (BRIT); Balinsasayao Twin Lakes Natural Park, Trail 2, around small lake Danao, 920 m.a.s.l., 9.34449, 123.17715 (locality code: P17), in bark of *Ficus* sp., 12-Dec-2019, ipse AG 2019/719 (BRIT).

Zeorin? (Unknown substance Rf 5-6/3/5-6 orange-brown after charring)

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District, Davao City, Baganihan, Marilog Forest Reserve,1202 m.a.s.l.,7,45392, 125,24509 (locality code: P48), anthropized area, corticolous in *Pinus* sp., 27-Dec-19, *A. Gerlach* (with M. Dal Forno, J. Nobleza), AG 2019/897a (BRIT)

**Additional analyzed specimens:**

Norstictic and ± salazinic acids, ± zeorin? (Rf 5-6/3/5-6 orange-brown after charring), ± protocetraric acid (trace)

THE PHILIPPINES. **Luzon**, prov. Benguet. Mount Santo Tomas, S of Baguio. Along road from telecommunication station to Baguio. Alt. 2100 m., rocky W-facing slope with scrub., 1988, 19-Feb-1987, 120, E, 16, N, 35, 18, 2100 m.a.s.l., *H. Sipman* 21804a (B). **Palawan**, Distr. Brookes Point. along trail from Macagua, at E-foot, to summit of mount Mantalingahan. 900 m.a.s.l., In primary forest relics in mountain slope, in fallen branches, 26. April, 1991, 117, E, 8, N, 43, 47, 900 m.a.s.l., *H. Sipman & B. Tan, 29921* (B 83614), ipse 29923(B 83615).

***Usnea bismolliuscula*** Zahlbr.

**Analyzed specimens**:

Stictic, constictic (trace), ± menegazziaic (trace), ± crypstostictic (trace), ± norstictic acids (trace), ± lobaric acid, ± US1, US2

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, 1227 m.a.s.l., 7,45938, 125,25106 (locality code: P47),in the new Baganinhan road, 26-Dec-2019, A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/895a; ibid, (locality code: P48),in *Pinus* sp., 27-Dec-2019, ipse AG 2019/897b (BRIT); ibid, (locality code: P48),in *Pinus* sp., 27-Dec-2019, ipse AG 2019/908b (BRIT); ibid, (locality code: P56), 27-Dec-2019, ipse AG 2019/944c (PHU); ibid, 27-Dec-2019, ipse AG 2019/950d (PHU); ibid, anthropized environment, 29-Dec-2019, ipse AG 2019/995g (BRIT); ibid, (locality code: P57), 27-Dec-2019, ipse, AG 2019/951; ibid (locality code: P56), 27-Dec-2019, ipse AG 2019/950d (dupl. B, G, PNH, CMHU, BRIT); ibid, (locality code: P58), in *Pinus* sp., 28-Dec-2019, ipse, AG 2019/957a. ibid (locality code: P73), anthropized environment, in *Pinus*, 29-Dec-2019, ipse AG 2019/996d (BRIT); Marilog Forest Reserve, Lawi Lawi Resort, Arakan, Datu Ladayon, trail with native plants, 1237 m.a.s.l., 7.46275, 125.25282 (locality code: P86), 30-Dec-2019, ipse AG 2019/P86 (BRIT); ibid, open area, 1239 m.a.s.l., 7.46481, 125.25234 (locality code: P87), in tree trunk, 30-Dec-2019, ipse AG 2019/P87 (BRIT); ibid, 1186 m.a.s.l., close to Malambo Mt, CMU nursery, Anthropized environment (locality code: P74), 29-Dec-2019, ipse AG 2019/998f (BRIT); ibid, 1185 m.a.s.l., 29-Dec-2019, trail to the Bussay waterfall, Anthropized environment (locality code: P75), ipse, AG 2019/1002b (BRIT); ibid, 1215 m.a.s.l,, 30-Dec-2019, trail with native plants close to a new road (locality code: p79),in branch of *Medinilla* sp., ipse AG 2019/1007c (BRIT); ibid, 1184 m.a.s.l, 30-Dec-2019, trail with native plants (locality code:p81), AG 2019/1012b; ibid, 1200 m.a.s.l, 30-Dec-2019, open area with sun, in trail going up, (locality code: P83), in twin branches, ipse AG 2019/1018a; 1219 m.a.s.l., 30-Dec-2019, eletricity tower, ipse, AG 2019/P85 (BRIT). **Negros**, Negros Oriental, Dumaguete City: Dumaguete City: Balinsasay ao Twin Lakes Natural Park, 893 m.a.s.l., 9,35281, 123.18253 (locality code: AP11), in branches on the ground, 11-Dec-2019, A. Gerlach (with A. D. Nietes) AG 2019/627b (BRIT).

**Additional specimens**: JAPAN. Honshu, Prov. Hitachi (Pref. Ibaraki): Tsukuba-san shrine, Mt. Tsukuba, Tsukuba-city, in stone work, elevation about 270 m, 23 July 1998, *Y. Ohmura 4434* (TNS); *ibid*, 19 January 2002, *Y. Ohmura 4774* (TNS). Honshu, Prov. Awa (Pref. Chiba): Yomogi, Kamogawa-city, on bark of *Cryptomeria japonica*, 162 m.a.s.l., 5-Sep-2010, *Y. Ohmura 7244* (B 600188371); *ibid*, 21 June 2010, *Y. Ohmura 7149* (TNS); *ibid*, 8 December 2013, *Y. Ohmrua 9896, A. Mizobuchi & S. Handa* (TNS); Kotadai, Ohtaki-machi, Isumi-gun (N35 14 01, E140 09 34), on bark of *Cryptomeria japonica*, elevation 170 m, 4 September 2010, *Y. Ohmura 7238, 7239* (TNS); Kiyosumi, University Forest in Chiba, Kamogawa-city (N35 09 36, E140 08 48), on trunk of *Cryptomeria japonica*, elevation 292 m, 22 June 2010, *Y. Ohmura 7157* (TNS). Honshu, Prov. Kazusa (Pref. Chiba): Ichinomiya, 30 March 1952, *Y. Asahina 52330* (B 46968). Prov. Sagami (Pref. Kanagawa): Hakone, Lakeside of Ashinoko, on bark of *Cryptomeria japonica, 15-July-1952, M. Togashi* (B 600184004)*.* Honshu, Prov. Izu (Pref. Shizuoka): Ikadaba, Izu-city (N34 54 02, E138 57 57), on bark of *Cryptomeria japonica*, elevation 380 m, 28 November 2012, *Y. Ohmura 9363* (TNS). Honshu, Prov. Ohmi (Pref. Shiga): Takamiya-Jinjya, Tarao, Shigaraki-tyo, Koka-city, on bark of *Cryptomeria japonica*, elevation 490 m, 6 August 2017, *A. Muranaga 300* (TNS). Honshu, Prov. Kii (Pref. Wakayama): Mt. Koya (N34 12 48, E135 34 45), on trunk of *Cryptomeria japonica*, elevation 830 m, 27 December 2016, *Y. Ohmura 11225*, *11226* (TNS). TAIWAN. Chiayi Co.: Duolin (Toroyen), Mt. Alishan, Alishan Township (N23 32, E120 48), on bark of *Prunus* sp., elevation 1530 m, 5 October 2011, *Y. Ohmura 8757* (TNS); Mt. Dadong, Jhuci Township (N23 30, E120 42), on twig of *Rhododendron* sp., elevation 1650 m, 5 October 2011, *Y. Ohmura 8786* (TNS); Fencihu, Jhuci Township (N23 30, E120 41), on bark of *Cryptomeria japonica*, elevation 1460 m, 5 October 2011, *Y. Ohmura 8792* (TNS); along Fenchihu-Rueili Historic Trail, Fencihu, Jhuci Township (N23 30, E120 41), on bark of *Cryptomeria japonica*, elevation about 1400 m, 3 October 2011, *Y. Ohmura 8680* (TNS). Nantou Co.: Renluen (N23 42 46, E120 54 21), on bark of *Pinus* sp., elevation 1578 m, 30 August 2008, *Y. Ohmura 6222* (TNS).

Barbatic, ± stictic, ± salazinic, ± US1, US2

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District, Davao City, Baganihan, Marilog Forest Reserve, 7,48327, 125,26128, 1186 m.a.s.l., 29-Dec-2019, close to Malambo Mt, CMU nursery, Anthropized environment (locality code: P74), A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/998e (BRIT); ibid, 1215 m.a.s.l, 30-Dec-2019, trail with native plants close to a new road (Locality Code: P79), on branches, ipse, AG 2019/1008a (BRIT); ibid, ipse, AG 2019/1007e (BRIT). Marilog Forest, Shevock s.n. (BRIT). **Negros**, Negros Oriental, Dumaguete City, Taclobo, Larena Drive, Balinsasayao Twin Lakes Natural Park, 899 m.a.s.l, 11-Dec-2019, around the guest house, on Coconut Palm, A. Gerlach (with A. D. Nietes) AG 2019/636b (dupl. PHU).

Stictic and salazinic acids, ± US1, US2

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, 1188 m.a.s.l., 7,45960, 125,24522 (locality code: P56), 27-Dec-2019, A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/950a (BRIT). 1186 m.a.s.l, 29-Dec-2019, close to Malambo Mt, CMU nursery (locality code: P74), 29-Dec-2019, ipse, AG 2019/998c (BRIT).

Salazinic and norstictic acis, protocetraric acid (trace)

THE PHILIPPINES. **Negros**, Negros Oriental, Dumaguete City: Santa Catalina, San Pedro: Cuernos de Negros, 9,24092, 123,11626, 1324 m.a.s.l., 17-Dec-2019, mid elevation, forest edge (locality code: P34), A. Gerlach (with M. Dal Forno, A. D. Nietes) AG 2019/852c (BRIT).

Norstictic acid

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, 7,45938, 125,25106, 1227 m.a.s.l., 26-Dec-2019, in the new Baganinhan road (locality code: P47), A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/895b (BRIT).

US1, US2

JAPAN. Kyushu, Prov. Hyuga (Pref. Miyazaki): Shiratori Shrine, Ebino-city (N31 58, E130 49), on bark of *Cryptomeria japonica*, elevation 720 m, 17 December 2001, *Y. Ohmura 4840 & S. Kurogi* (TNS).

***Usnea brasiliensis*** (Zahlbr.) Motyka

**Analyzed specimens:**

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, 1188 m.a.s.l., 7,45960, 125,24522 (locality code: P56), 27-Dec-2019, Disturbed Forest, abandone house, with *Pinus*, A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/950c (G); ibid, 1258 m.a.s.l., 29-Dec-2019, Malambo mountain, base, by the road, right in front of Royal Mandala Forest farm (locality code: P72), anthropized environment, ipse AG 2019/995b (BRIT); ibid, Lawi Lawi Resort, Arakan, Datu Ladayon, trail with native plants close to a new road, 1215 m.a.s.l., 7.46423, 125.2443 (locality code: P79), on branch of *Medinilla* sp., 29-Dec-2019, ipse AG 2019/1007h (G). **Negros**, Negros Oriental, Dumaguete City: Taclobo, Larena Drive: Balinsasayao Twin Lakes Natural Park, fallen tree *Agathis*, 1058 m.a.s.l., 9.36111, 123.175 (locality code: MP12), on fallen tree trunk, 11-Dec-2019, M. Dal Forno (with J. Shevock & D. Salas) 3438b (G)

***Usnea confusa*** Asahina

**Analyzed specimens:**

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, 1227 m.a.s.l., 26-Dec-2019, on the new Baganinhan road (locality code: P47), A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/893b (BRIT, PNH); ibid (locality code: P48), on bark *Pinus* sp., 27-Dec-2019, ipse AG 2019/897c (BRIT); ibid (locality code: P56), 27-Dec-2019, ipse AG 2019/944b (BRIT); ibid (locality code: P56), ipse AG 2019/946b (G); ibid, (locality code: P72), 29-Dec-2019, AG 2019/995c (BRIT); ibid, (locality code: P73), on *Pinus* sp., 29-Dec-2019, ipse, AG 2019/996b (BRIT); ibid, 7,48327, 125,26128, 1186 m.a.s.l, 29-Dec-2019, close to Malambo Mt, CMU nursery (locality code: P74), Anthropized environment, ipse, AG 2019/998a (PHN, BRIT, CMUH); ibid, 1219 m.a.s.l, 30-Dec-2019, eletricity tower (locality code: P85), ipse AG 2019/P85 (G); ibid, 1239 m.a.s.l., 30-Dec-2019, open area, ipse AG 2019/ P87 (G). **Negros**, Negros Oriental, Dumaguete City: Taclobo, Larena Drive: Balinsasayao Twin Lakes Natural Park, higher pointed reached, 1040 m.a.s.l., 9.35947, 123.17361 (locality code: MP13), on tree trunk, 11-Dec-2019, M. Dal Forno (with J. Shevock & D. Salas) 3471a (BRIT).

***Usnea croceorubescens*** Vain

**Analyzed specimens**:

Barbatic, norstictic, ± salazinic, ±4-0-demethylbarbatic acids

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, 7,48936, 125,25365, 1279 m.a.s.l., 29-Dec-2019, Malambo mt, open area with *Pinus* sp, close to the nice abandone house (Locality Code: P70), *A. Gerlach* (with M. Dal Forno, J. Nobleza) AG 2019/992b (BRIT); ibid, 1202 m.a.s.l., 27-Dec-2019, close to the main road to the Lawi Lawi Resort, entry to house, (locality code: P48), on *Pinus* sp, ipse, AG 2019/897d (BRIT). **Negros**, Negros Oriental, Dumaguete City: Santa Catalina, San Pedro: Cuernos De Negros, 9,24092, 123,11626, 1324 m.a.s.l, 17-Dec-2019, mid elevation, forest edge (*Cyphellostereum, Crocynia, Cryptothecia*), (locality Code: P34), *A. Gerlach* (with M. Dal Forno, A. D. Nietes) AG 2019/852a-b (BRIT, dupl PNH); ibid (locality code: P33), ipse AG 2019/846 (BRIT); ibid, ipse AG 2019/849a (G); ibid, ipse AG 2019/850a (G). Dumaguete City: Taclobo, Larena Drive: Balinsasayao, Twin Lakes Natural Park, higher pointed reached, 1040 m.a.s.l., 9.35947, 123.17361 (locality code: MP13), 11-Dec-2019, M. Dal Forno (with J. Shevock & D. Salas) 3460 (BRIT); ibid, 11-Dec-2019, ipse MDF 3471 (G).

**Additional analyzed specimens**: THE PHILIPPINES. **Luzon island**, Benguet, Mount Santo Tomas, S of Baguio, 2100 m.a.s.l., 19-Feb-1987, H. Sipman 21804 (B 73527); ibid, ipse H. Sipman 21804b (B 73552).

***Usnea dasaea*** Stirt.

**Analyzed specimens**:

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, 7,45672, 125,23962, 1095 m.a.s.l., 28-Dec-2019, open road, disturbed, close to the main road near Lawi Lawi Resort (locality code: P65), A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/969c (BRIT); ibid, 1279 m.a.s.l., 29-Dec-2019, Malambo mt, open area with *Pinus* sp, close to the nice abandone house (locality code: P70), ipse AG 2019/980b (BRIT); ibid, 1227 m.a.s.l., 26-Dec-2019, on the new Baganinhan road (locality code: P47), ipse AG 2019/896a,b,d (BRIT, PNH, G); ibid, 1185 m.a.s.l., 29-Dec-2019, trail to the Bussay waterfall, Anthropized environment (Locality code: P75), ipse, AG 2019/1002c (BRIT); ibid, on branch of *Medinilla* sp., ipse AG 2019/1007d (BRIT); ibid, 1219 m.a.s.l, 30-Dec-2019, eletricity tower, ipse, AG 2019/ P85 (G); 1237 m.a.s.l., 30-Dec-2019, trail with native plants, ipse, AG 2019/P86 (G).

**Additional analyzed specimens**: PORTUGAL. Santarém, Ansião, Alvaiazere, 39º51´22.59´´N, 08º24´34.92´´W, 455 m, 22-July-2019, D. Nunes & A. Nunes s. n. (ITS sequence code: DN121) (G 00599772). ECUADOR, Pichincha, Quito, comunidad de Llano Grande 2.585 m.a.s.l., bosque de Eucalyptos, 9.2007, Edison s.n. (ITS sequence code: u81) (G00297015). JAPAN. Honshu, Prov. Mikawa (Pref. Aichi): Mt. Horaiji, Kadoya, Horai-cho, Minamishitara-gun (N34 58, E137 35), elevation about 340 m, 5 December 1996, *Y. Ohmura 2842* (TNS).

***Usnea himalayana*** C. Bab.

**Analyzed specimens**:

Salazinic acid, ± norstictic acid, ± protocetraric acid (trace) . (n=3)

INSULAE PHILIPPINENSES: Todaye, ad arbores. Krypt. Exs. Vindob. *E. D. Merrill 1254* (B). THE PHILIPPINES. **Luzon island**, prov. Benguet. Mount Santo Tomas, S of Baguio. Along road from telecommunication station to Baguio, 2100 m.a.s.l., 120º35E, 16º18´N, 19-Feb-1987, *H. Sipman 21744* (B 73258). Palawan Distr. Brookes Point. Along trail from Macagua at E-foot, to summit of mount Mantalingahan. 900 m.a.s.l., 8°47N, 117°43E. 26-Apr-1991, *H. Sipman 29922* (B 83616)

Constictic acid (n=1)

THE PHILIPPINES. **Mindanao**, Mount Apo, Sumpfgebiet am Westufer des Lake Venado, lichtoffen, Bergregenregion, halbschattig. 2210 m.a.s.l., An Rinde., ex Herb. F. Schumm Nr. 5484, 20-Mars-1999, *Uwe Schwarz* (B 600117783).

**Additional analyzed specimens**: NEPAL. Sud de l’Annapurna, Poonhill – Pokhara, May 1999, Seraoui s.n. (G 262518) ; Eastern Region, Mechi, environs de Tapletok, 6 October 1971, Dobremez 45d (G 58637) ; Farwestern Region, Seti, Montée de Doti à la crête du Khaptad, 22 April 1973, Ozenda 122m (G 119495). PAPUA NEW GUINEA. **Simbu**: Bismarck Range, Mt. Wilhelm, Pindaunde Valley, SE of Lake Aunde, January 1966, D.J.Hill 12578 (G262519).

TAIWAN. **Hualien Co.** : Hohuanshan Mts, Shi-Lin Village, March 9, 2003, Kashiwadani 45705 (G262517)

***Usnea krogiana*** P. Clerc **Analyzed specimens**:

Stictic, constictic, cryptostictic, menegazziaic and norstictic acids:

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District, Davao City: Baganihan, Marilog Forest Reserve, 7,46270, 125,25301, 1219 m.a.s.l., 30-Dec-2019, eletricity tower (Locality code: P85), A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/ P85 (G); ibid, 1237 m.a.s.l., trail with native plants, ipse, AG 2019/P86 (G). **Negros**, Negros Oriental, Dumaguete City: Santa Catalina, San Pedro: Cuernos de Negros, Cuernos de Negros, open area close to camping site, tree with *Usneas* Jaime climbed, 1337 m.a.s.l., 9.24099, 123.11667 (locality code: P33), 17-Dec-2019, A. Gerlach (with M. Dal Forno, A. D. Nietes) AG 2019/848 (BRIT).

Salazinic acid:

THE PHILIPPINES. **Negros**, Negros Oriental, Dumaguete City: Santa Catalina, San Pedro: Cuernos de Negros, forest going up the ridge to peak Hapon Hapon, 1368 m.a.s.l., 9.24245, 123.11779 (locality code: P24), 15-Dec-2019, M. Dal Forno (with A. Gerlach & A.D. Nietes) 3635a (G, PU35).

***Usnea nidifica*** Taylor

**Analyzed specimens**: THE PHILIPPINES. **Negros**, Negros Oriental, Dumaguete City: Taclobo, Larena Drive: Balinsasayao Twin Lakes Natural Park, fernery behind restaurant, 909 m.a.s.l., 9.36083, 123.17846 (locality code: P19), Planted edible ferns and coconut palms, On coconut tree, 12-Dec-2019, M. Dal Forno (with A. Gerlach & A.D. Nietes) 3483 (BRIT); ibid, 12-Dec-2019, ipse M. Dal Forno 3496 (PNH); ibid, road before the park entrance, trees by the road, 782 m.a.s.l., 9.36707, 123.18211 (locality code: P20), anthropized area, on fallen branch, 13-Dec-2019, ipse, M. Dal Forno 3554 (G).

**Additional analyzed specimens**: THE PHILIPPINES. **Luzon island**, Benguet, Mount Santo Tomas, S of Baguio, 2100 m.a.s.l., 19-February-1987, H. Sipman 21804b (B 60 0073552); Cavita prov. Tagaytay city, c. 60 km s of Manila, Picnic Ground Park., 600 m.a.s.l., 21-Mar-1987, H. Sipman 22485 (B 60 0073550). **Palawan island**, Distr. Brookes Point. Along trail from Macagua, at E-foot, to summit of Mount Mantalingahan, 900 m.a.s.l., 26-april-1991, *H. Sipman & B. Tan* (B 60 0083619). AUSTRALIA. **New South Wales**. Birk Collic, 1884, F. v. Müller s.n. (G262516). JAPAN. **Bonin islands**, Aug. 1885, anonymous 298 (G262512); Nagatani, Chichi-jima island, 26 June 2009, *Y. Ohmura 6558* (Lich. Min. Cogn. Exs. 396) (G262513); Mt. Tsutsuji, Chichi-jima island (N27 03 46, E142 13 17), in traffic sign plate along road, 255 m.a.s.l., 28 June 2009, *Y. Ohmura 6613* (TNS); Mt. Chibusa, Haha-jima island (N26 39 02, E142 09 36), in twigs of *Wikstroemia pseudoretusa*, 201 m.a.s.l., 23 June 2009, *Y. Ohmura 6486* (TNS). **Sulphur islands**, Kita-iwo island (N25 26 16, E141 16 57), in bark of *Livistona chinensis* var. *boninensis*, 490 m.a.s.l., 18 June 2009, *Y. Ohmura 6415 & N. Yoshii* (TNS). VANUATU. Prov Sanma, Espiritu Santo: Palon, Kashiwadani 43225 & 43226 (G262514 & G262515)

***Usnea norsticornuta*** *A. Gerlach & P. Clerc sp. nov.* **Analyzed specimens:** THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, 7,48853, 125,25288, 1258 m.a.s.l., 29-Dec-2019, Malambo mountain, base, by the road, right in front of Royal Mandala Forest farm, Anthropized environment (locality code: P72), A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/995e, h (G, PNH). **Negros**, Negros Oriental, Dumaguete City: Santa Catalina, San Pedro: Cuernos de Negros, 9,24918, 123,12500, 1523 m.a.s.l., 16-Dec-2019, Forest going down past peak Hapon Hapon to Kanaway, *Usnea* fallen; close to mossy fern forest (locality code: AP30), A. Gerlach (with M. Dal Forno, A. D. Nietes) AG 2019/817 (BRIT).

**Additional analyzed specimens:** THE PHILIPPINES. **Luzon island**, Pampanga province, Camp Stotsenburg (Mt. Pinatubo) May-1927, A. D. E. Elmer 22062 (B 56256, B 37149).

***Usnea paleograndisora*** *A. Gerlach & P. Clerc sp. nov.*

**Analyzed specimens:**

Salazinic, norstictic and galbinic acids (n=8)

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, 7,46245, 125,25488, 1200 m.a.s.l., 30-Dec-2019, open area with sun, on trail going up (locality code: P83), on thin branches, A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/1018b (G); ibid, 1186 m.a.s.l.,29-Dec-2019, close to Malambo Mt, CMU nursery, Anthropized environment(locality code: P74), ipse AG 2019/998b (BRIT); ibid, 1215 m.a.s.l., 30-Dec-2019, trail with native plants close to a new road (locality code: p79), on branch of *Medinilla* sp., ipse AG 2019/1007b (PHU); ibid, 1188 m.a.s.l., 27-Dec-2019, Disturbed Forest, abandone house, with *Pinus*, (locality code: P56), ipse AG 2019/944d (BRIT); ibid, 1131 m.a.s.l., 28-Dec-2019, Beggining o f trail to Epol Waterfall, paty down locality code: P58), on corticolous *Pinus* sp., 28-Dec-2019, ipse AG 2019/957b (BRIT); ibid, 1258 m.a.s.l., 29-Dec-2019, Malambo mountain, base, by the road, right in front of Royal Mandala Forest farm (locality code: P72), anthropized environment, ipse AG 2019/995d (G); ibid, 1188 m.a.s.l., 27-Dec-2019, Disturbed Forest, abandone house, with *Pinus*, ipse AG 2019/946c (BRIT).

**Additional analyzed specimen**: *Usnea grandisora*. Ecuador. Galapagos island, San Cristobal, 0º51´34.6´´S, 89º27´35.2´´W, 389 m. 23-August-2008, C. Truong, with P. Clerc & M. Herrera-Campos 1565 (G00285266).

***Usnea pectinata* Taylor**

**Analyzed** **specimens:**

Stictic, cryptostictic, menegazziaic, constictic and norstictic acids, ± fatty acid (tlc 60, 122), ± unknown (Rf classe 5/3/5-6 green after charring)

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, 7,48404, 125,25758 (locality code: P73), on *Pinus* sp., 29-Dec-2019, A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/996a (BRIT); ibid (locality code: P72), 29-Dec-2019, ipse, AG 2019/995f (BRIT); ibid, (locality code: P56), 27-Dec-2019, ipse AG 2019/944a (PNH); ibid, ipse AG 2019/946d (G); ibid (locality code: P74), 1186 m.a.s.l., 29-Dec-2019, ipse, AG 2019/998d (BRIT); ibid (locality code: P70), Malambo mt, 1279 m.a.s.l., open area with *Pinus* sp, close to theb abandone house, 29-Dec-2019, AG 2019/1004 (G). **Negros**, Negros Oriental, Dumaguete City: Balinsasayao Twin Lakes Natural Park, 893 m.a.s.l., 9,35281, 123.18253 (locality code: AP11), on fallen branches, 12-Dec-2019, A. Gerlach (with A. D. Nietes) AG 2019/627 (BRIT); Dumaguete City: Santa Catalina, San Pedro: Cuernos de Negros, 9,24099, 123,11667 (locality code: P33), A. Gerlach (with M. Dal Forno, A. D. Nietes) AG 2019/849b; ibid, Dumaguete City: Taclobo, Larena Drive: Balinsasayao Twin Lakes Natural Park, fallen tree *Agathis*, 1058 m.a.s.l., 9.36111, 123.175 (locality code: MP12), 11-Dec-2019, M. Dal Forno (with J. Shevock & D. Salas) 3438a (BRIT).

**Additional analyzed specimens:**

THE PHILIPPINES. Mountain Prov. Sagada, 16-VII-2000, *P. A. Bawingan & P. F. Rosuman CL 227* (B60 0143608). Ibid., ipse *P. A. Bawingan & P. F. Rosuman CL 227a* (B 600146192).

Salazinic, norstictic, protocetraric acids:

THE PHILIPPINES. **Palawan island**, Distr. Brookes Point. Along trail from Macagua, at E-foot, to summit of mount Mantalingahan. Alt. c. 1100 m., in mossy primary forest on ridge, 1991, *H. Sipman & B. Tan 29976* (B 83618)

Salazinic and constictics acids:

THE PHILIPPINES. **Luzon island**, Mountain Province, Barlig side, Mt. Amuyaw, mossy forest (6500-), 28-29 December-1986, *B.C. Tan 86-329* (B 56989).

Protocetraric acid, ± diffractaic acid, ± fatty acid

THE PHILIPPINES. **Negros**, Negros Oriental, Dumaguete City: Taclobo, Larena Drive: Balinsasayao Twin Lakes Natural Park, fernery behind restaurant, 909 m.a.s.l., 9.36083, 123.17846 (locality code: P19), on coconut tree, 12-Dec-2019, M. Dal Forno (with A. Gerlach & A.D. Nietes) 3482 (BRIT); ibid (locality code: P19), 12-Dec-2019, ipse M. Dal Forno 3497 (G); ibid, on Coconut Palm, 11-Dec-2019, A. Gerlach (with A. D. Nietes) AG 2019/636a (PNH)

Salazinic acid, diffractaic acid

THE PHILIPPINES**. Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, 1095 m.a.s.l., 28-Dec-2019, open road, disturbed, close to the main road near Lawi Lawi Resort (locality code: P65), A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/979 (BRIT).

Barbatic acid, salazinic acid, 4-O-demethylbarbatic acid (n=1)

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, 1202 m.a.s.l., 7,48404, 125,25758 (locality code: P73), close to Malambo mt., planted *Pinus* by the road, anthropized environment, 29-Dec-2019, A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/997 (BRIT).

***Usnea rubicunda*** Stirt.

**Analyzed specimens:**

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, 1188 m.a.s.l., 7,45960, 125,24522 (locality code: P56), 27-Dec-2019, Disturbed Forest, abandone house,in *Pinus* sp., A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/950b (G); ibid (locality code: P75), 1185 m.a.s.l., trail to the Bussay waterfall, Anthropized environment, 29-Dec-2019, A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/1002a (BRIT); ibid (locality code: P85), 1219 m.a.s.l., eletricity tower, 30-Dec-2019, ipse, AG 2019/ P85 (G). **Negros**, Negros Oriental, Dumaguete City: Santa Catalina, San Pedro: Cuernos de Negros, 1337 m.a.s.l., 9,24099, 123,11667 (locality code: P33), open area close to camping site, tree with *Usneas* Jaime climbed, 17-Dec-2019, A. Gerlach (with M. Dal Forno, A. D. Nietes) AG 2019/847 (BRIT, PNH).

***Usnea rubrotincta*** Stirt.

**Analyzed specimens:**

Salazinic, norstictic, protocetraric (t):

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, after the first cave, edge of a forest close to the river, 1169 m.a.s.l., 7,46024, 125,25790 (locality code: P45), 26-Dec-2019, A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/891b (BRIT); ibid, 1095 m.a.s.l., 7,45788, 125,23925 (locality code: P65), 28-Dec-2019, open road, disturbed, close to the main road near Lawi Lawi Resort, A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/969d (G).

**Additional analyzed specimen**:

THE PHILIPPINES. **Mindanao**, Mount Apo, Sumpfgebiet am Westufer des Lake Venado, lichtoffen, Bergregenregion, halbschattig., 2210 m.a.s.l., An Rinde., ex Herb. F. Schumm Nr. 5483, 20-Mars-1999, Uwe Schwarz (B 600117782).

***Usnea spinulifera*** (Vain.) Motyka

**Analyzed specimens**.

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District: Davao City: Baganihan, Marilog Forest Reserve, 1095 m.a.s.l., 7,45788, 125,23925 (locality code: P65), open road, disturbed, close to the main road near Lawi Lawi Resort, 28-Dec-2019, A. Gerlach (with M. Dal Forno, J. Nobleza) AG 2019/969a, b (BRIT, G); ibid, 1169 m.a.s.l., 7,46024, 125,25790 (locality code: P45), after the first cave, edge of a forest close to the river, 26-Dec-2019, ipse AG 2019/891a (G).

**Additional specimens analyzed**: BRAZIL. Brazil, Santa Catarina, Alfredo Wagner, RPPN Rio das Furnas, Maio 2016, A. Gerlach P55 (G, DNA 33BR); Brazil, Santa Catarina, Alfredo Wagner, RPPN Rio das Furnas, Maio 2016, A. Gerlach P34 (G, DNA 39BR)

***Usnea yoshihitoi*** *P. Clerc & A. Gerlach sp. nov*

**Paratypes:**

Stictic, constictic, menegazziaic, crypstostictic, and norstictic acids (trace):

THE PHILIPPINES. **Mindanao**, Davao Del Sur, Marilog District:Davao City, Baganihan, Marilog Forest Reserve, 7,45392, 125,24509, 1162 m.a.s.l., 27-Dec-2019, Disturbed Forest where we taked lunch break (locality code: P53), ipse AG 2019/931 (TNS); ibid, 1169 m.a.s.l., 26-Dec-2019, after the first cave, edge of a forest close to the river (locality code: P45), ipse AG 2019/891c (PNH); ibid, 1131 m.a.s.l., 28-Dec-2019, Beggining of trail to Epol Waterfall, paty down (locality code: P58),in *Pinus* sp., ipse AG 2019/957c (G); ibid, 1279 m.a.s.l., 29-Dec-2019, Malambo mt, open area with *Pinus* sp, close to the nice abandone house (locality code: P70), ipse AG 2019/992a (BRIT); ibid, Arakan, Datu Ladayon, trail with native plants cloe to a new road, 1215 m.a.s.l., 7.46423, 125.2443 (locality code: P79),in branch of Medinilla, 30-Dec-2019, ipse AG 2019/1007c (TNS). **Negros**, Negros Oriental, Dumaguete City: Santa Catalina, San Pedro, Cuernos de Negros, 9,24092, 123,11626, 1324 m.a.s.l. Tropical lowland Rainforest, 17-Dec- 2019, A. Gerlach, M. Dal Forno & A. D. Nietes, AG 2019/852c (G).