

**SYNOPSIS OF THE GENUS *ACTINIOPTERIS* LINK (PTERIDACEAE)**

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The synopsis of the genus *Actiniopteris* Link is presented in the article. Localities are exactly pointed for all species. The original key for determination of *Actiniopteris* species has been developed.

Key words: *Actiniopteris*, synopsis, key.

**КОНСПЕКТ РОДА *ACTINIOPTERIS* LINK (PTERIDACEAE)**

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В статье приведен конспект рода *Actiniopteris* Link. Для всех видов указаны подробные места произрастания. Составлен оригинальный ключ для определения видов рода *Actiniopteris*.

Ключевые слова: *Actiniopteris*, конспект, ключ.

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Genus *Actiniopteris* Link belongs to the subfamily *Pteridoideae* C.Chr. ex Crabbe, Jermy & Mickel of family Pteridaceae E.D.M.Kirchn. and includes 6 species: *Actiniopteris australis* (L. f.) Link, *A. dimorpha* Pichi-Serm, *A. kornasii* Medwecka-Kornaš, *A. radiata* (Koenig ex Sw.) Link, *A. semiflabellata* Pichi-Serm, *A. pauciloba* Pichi-Serm. (Kuznetsov et al, 2009; Christenhusz et al, 2011).

*Actiniopteris* species grow mainly in the mountainous regions of tropical and subtropical regions of the Old World within the African-Asian area of distribution. There are all six species of the genus in the central and eastern part of the African continent; only two of them – *A. dimorpha* and *A. australis* – in the southeast of Africa, on the Madagascar Island (Tardieu-Blot, 1952; Pichi Sermolli, 1962; Lawalrée, 1969; Schelpe 1970; Thulin, 1993; Burrows, 1990; Verdcourt, 1999). In Southern Asia *A. australis*, *A. radiata* spread; in south-west of Asia, in the Arabian Peninsula – *A. australis*; on the Socotra island – *A. semiflabellata* (Pichi Sermolli, 1962; Kornas et al, 1982; Beddome, 1983; Ohba, Malla, 1988; Gurung, 1991). All the *Actiniopteris* species are xerophytes, they prefer dry habitats and could be found on dry slopes and in rock crevices at an altitude of 100 to 2700 m asl.

**MATERIALS AND METHODS**

The synopsis is compiled on the basis of materials of Europe and Asia herbarium funds – B, P, TI, PE, LE, KYO, ALTB, TK, as well as with the assistance of special botanical literature. The synopsis of *Actiniopteris* consists of 6 species. For each species we give its Latin name, basionym, nomenclature citation, synonyms, place of first description, information about type, data on the habitat, distribution in countries with citations of locations and general distribution. The original key for determination of all *Actiniopteris* species has been compiled.

**RESULTS**

*Actiniopteris* Link, 1841, Fil. Sp.: 79; Diels, 1902, in Engler et Prantl, Nat. Pflanzenfam. 1(4): 288; Verdoorn, 1947, in Copeland, Gen. Fil. the Gen. of Ferns: 72; Pichi-Serm. 1962, Webbia 17, 1: 6; id. 1963, Adumbr. 10: 318; Lawalree, 1969, Fl. du Congo du Rwanda et du Burundi, Pterid.: 1; Schelpe, 1977, Consp. Fl. Angolensis: 110;

Kornas and al. 1982, Bull. Jard. Bot. Nat. Belg. 52: 265–309; H. Ohba and Samal B. Malla, 1988, Himal. Pl. 1: 263; Thulin, 1993, Fl. Somalia, 1: 8; Medwecka-Kornas, 1999, Fragm. Fl. Geobot. 44 (1): 72; Verdcourt B. 1999, Fl. Tropic. E. Afr.: 1.

Plants are relatively not large, reach a height of 10–35 cm. Rhizome is short, oblique. Parts of the first order (of vegetative and sporiferous frond) are frond final parts, which extend radially from a single point at the top of leaf stalk and together form a plate of the frond. The length of the part (sporiferous and vegetative) is ten times greater than the width.

The 6 species from Africa and Southern Asia.

Lectotypus: *Actiniopteris radiata* (Swartz) Link (Pichi-Serm., 1962).

Dry habitats (crevices of rocks, dry slopes), common in elevations, also found in open areas in the forest.

Distrib.: Africa, Asia, the islands of Madagascar, Mauritius, Reunion (Bourbon), Zanzibar, Socotra, Seychelles, Comoros, Cape Verde.

The key for determination of the species of *Actiniopteris* Link.

1. A frond plate formed by final parts, which compose an angle of less than 30°; scales narrowly lanceolate, monochromatic light brown to transparent, sometimes with dark brown (but not black) strip along the midline..... 2
  - The frond plate formed by final parts, which compose an angle of more than 30°, scales lanceolate and narrowly lanceolate, two-colored (light brown and black)..... 3
2. Plants height up to 10 cm. The frond final parts in a small number (2–4). The stalk usually 2–3 times longer than frond plate, scales narrowly lanceolate, monochromatic light brown to transparent ..... **1. *A. kornasii***
  - Plants 10–35 cm high. The frond final parts in number of 4 or more. The stalk is usually proportionate to, or 1.5–2 times as long as the frond plate, scales narrowly lanceolate, monochromatic light brown to transparent, sometimes with dark brown (but not black) strip along the midline ..... **6. *A. australis***
3. The stalk usually 4–5 times longer than frond plate; the frond final parts form an angle of 90–180° or more; hair-like scales climb to the top of the stalk, forming bundles on the joint place of the stalk and the frond final parts..... **2. *A. radiata***
  - The stalk usually 1.5–3 times longer than frond plate, the final parts of the frond form an angle of 30–180°, no more, the scales presented only at the base of the stalk..... 4
4. Sterile ending of final part of sporiferous frond simple (edges without denticles), without dissection (without blades and insections), not large, an extension of the final part (not free); scales narrowly lanceolate, entire black and black with bright edges ..... **4. *A. pauciloba***
  - Plants have different characters..... 5
5. Sterile ending of final part of sporiferous frond slight, narrowed, at the top with an almost imperceptible denticles, scales narrowly lanceolate, elongate, 2-colored; at the base of the stalk light brown with a black stripe in the middle and light brown..... **5. *A. semiflabellata***
  - Sterile ending of final part of sporiferous frond slight, narrow-sharpened, not divided and without blades and insections (with the exception of an option with partial dimorphism of fronds, when sterile ending of the final part of sporiferous frond whole, with small blades and (or) denticles on the top and by edges); scales broadly lanceolate, not elongated, two-colored; black with bright edges and light brown ..... **3. *A. dimorpha***

**1. *A. kornasii*** Medwecka-Kornas, 1999, Fragm. Fl. Geobot. 44(1): 72.

Described from Central Africa (Katanga province of the Congo Republic).

Typus: «Congo, upper Katanga. Katangan Copper Belt, Likasi region, Mindigi, alt. 1400–1420 m, lat. 11°06'S, long. 26°10'E, 3.04.1981, Malaisse 11751» (KRA; isotype: BR) (Medwecka-Kornas, 1999).

Crevices of rocks, of large boulders, on dry slopes, in shaded areas.

**Distrib.:** Congo: Mindigi, alt. 1400–1420 m, lat. 11°06'S, long. 26°10'E; Shinkolobwe, alt. 1420 m, lat. 11°02'S, long. 26°34'E; Shinkolobwe/Borne XIII, alt. 1400 m; lat. 11°02'S, long. 26°33'E. – **Gen. distr.:** Sub-Saharan Africa.

**2. *A. radiata*** (Koenig ex Sw.) Link. 1841, Fil. Sp. Hort. Berol.: 80; Carr. 1901, Cat. Afr. Pl. Welw. 2: 271; Engl. 1908, Pflanzenw. Afr. 2: fig. 37; Tardieu-Blot, 1952, Fl. Madag., Polypod. 1: 81, t. 16, f. 7–9; Alston, 1959, Fl. W. Trop. Afr.: 44; Pichi-Serm. 1962, Webbia 17, 1: 11, fig. 1; id. 1963, Adumbr. 10: 318; Tardieu-Blot, 1964, Fl. Cameroun 3, Pterid.: 150, t. 20, f. 3–4; Lawalree, 1969, Fl. du Congo du Rwanda et du Burundi, Pterid.: 3; Schelpe, 1970, Fl. Zamb.: 138, t. 42C; Schelpe, 1977, Consp. Fl. Angolensis: 111; Bedd. 1983, Ferns South. India: 43, pl. 124; Burrows, 1990, South. Afr. Ferns: 180; Thulin, 1993, Fl. Somalia, 1: 10; Friis I.B., Vollesen K.A.J. 1998, Fl. Sudan-Uganda 1: 38; Verdcourt B. 1999, Fl. Tropic. E. Afr.: 2. – *Asplenium radiatum* Koenig ex Sw. 1801, Journ. Bot. 1800, 2: 50. – *Acrostichum dichotomum* Forsk. 1775, Fl. Aeg.-Arab.: 184, non L. 1753. – *A. australe* Vahl, 1790, Symb. Bot. 1: 84. t. 25, non L. f. 1781. – *A. radiatum* Koenig ex Poir. 1810, Enc. Bot. Suppl. 1: 128; Tardieu, 1958,

Fl. Madag., Polypod. 1: 38–64; Orstom, 1988, List of Vascular Plants of Gabon with Synonymy; Verdcourt, B., 1999, Fl. Tropic. E. Afr.: 1–7. – *Acropteris radiata* Link, 1833, Hort. Berol. 2: 56. – *Blechnum radiatum* Presl, 1836, Tent. Pterid.: 103. – *Pteris radiata* Bojer, 1837, Hort. Maur.: 399. – *Asplenium polydactylon* Webb, Spic. Gorgon. 1849, in Hook. Niger Fl.: 193. – *Actiniopteris australis* Ettingsh. 1865, Farnkr. 85. t. 51. f. 10–13, non Link, 1841. – *Pteris dichotoma* Kuhn, 1867, Fil. Deck.: 18; 1868, Fil. Afr. 79, non L. 1753. – *Actiniopteris dichotoma* Kuhn, 1871, Bot. Zeit. 29: 504. – *A. australis* sensu Sim, 1915, Ferns S. Afr. edn 2: 250. – *A. australis* var. *radiata* (Koenig ex Sw.) C. Chr. 1932, Dansk Bot. Ark. 7: 125. – *A. australis* sensu Alston, 1934, Journ. Bot. 72, Suppl. Pterid.: 7; Gossw. and Mendonca, 1939, Cart. Fitogeogr. Angol.: 206, non (L. f.) Link, 1841.

Described from South Asia (India).

Lectotypus: “*Acrostichum radiatum*. Habitat in India. Specimen e collect. D. Dris. Konig misit Nob. Dnus Banks 1776. Herb. Montin. (S-PA)”. (Pichi-Serm., 1962).

Crevices of rocks, horizontal fractures of shale, exposed dry slopes, sometimes in a shade of rocks. H = 120–2100 m asl.

**Distrib.: Angola:** Angola, №126, Gyvingiro, sur les rochers calcares, 1720 m, de 0,1 a 0,4 m de hauteur, Mart 1899, Antunes; Angola, Quiara, 15°05' ostl. Lange. 12°44' sudl. Pyrcise, Hbohe, 1360 m, Febr 1908, Dr. Wellmann; Angola, Tchivinguiro-Capangombe, Bruco E13°12' S15°10', №4039, Alt. 1270m, 7.3.73, P. Bamps, F. Raimundo a. C. Matos; Musoma District, Naabi, S slope, 14 Feb. 1968, Greenway et al. 13193; Lushoto District, W Usambaras, Mazumbai-Mashewa, Apr. 1916, Peter 16578; Morogoro District, Uluguru Mts, lower hills, 3 Jan. 1938, Schlieben 3197; Iringa District, Ruaha National Park, NE slopes of Kimiramatonge, 20 Apr. 1971, Bjornstad 855; **Afghanistan; Botswana; Djibouti; Egypt (SE); Zambia:** Zambia Southern, 750–960 m, 18 February 1997, H.H. Schmidt, D.K. Harder, N.B. Zimba a. B. Luwiika 2333; Central prov., Mkushi distr., Mulungushi River, Gorge above power Station, 14°44'S, 28°50'E, alt. ca 720 m, J. Kornas, A. Medwecka-Kornas, №3480; **Zimbabwe; India:** Khajraha, Nov 1905, №2204, A. Meebold; Nag Pahar, Ajmer, Nov 30 1973, PBL/73/Ac-1(58)/485, R.P. Maharshi; **Iran; Yemen:** Jemen, Hille, Gebel Bura, №290, 1 Jan 1889; **Cameroon:** Cameroun, Douyngar fies Meri (30 km an NO de Marwa), №6446, 25.8.64, R. Letouze; Cameroun, Mokong (35 km W. Maroua), 1965, 10.5.74; Cameroun, 50 km au NE de Mokolo, route Mora, №177 bis, 18.9.1964, Ed. Bounougou; Cameroun, Douyngar pres Meri (30 km NO de Maroua), №6446, 25.8.1964, R. Letouzey; Cameroun, Pres de Mokolo, №102, 10.9.64, M. Biholong; **Kenya:** Kitui District, 15 km from Mutomo on Kibwezi road, 23 Nov. 1979, Gatheri et al. 79/158; Masai District, Ologesailie, 10 Apr. 1960, Verdcourt 2642; Teita District, Tsavo West National Park, Kevas Hill, 10 Apr. 1967, V.C. Gilbert 1311; **Congo:** Rio Zaire, Gebiet des unt Kongo, 9.3.1886, Maria Chaves; **Madagascar:** Madagascar Antsiranana, Ankarana RS, 90 m, 12°57'16"S 049°07'30"E, 25 April 1993, D.K. Harder, M.C. Merello, S.G. Razafimandimbison a. T.G. Razafindrabaeva 1712; Madagascar Mahajanga, Maevatanana, 100 m, 16°59'S 046°49'E, 20 Feb. 1985, L. Barnett, L.J. Dorr a. M.R. Cheek 461; Madagascar Toliara, Beza Mahafaly RS, 150 m, 23°40'S 044°35'E, 28 April 1987, Pete Phillipson 1743; Madagascar Toliara, Andohahela RN, 30–50 m, 24°49'49"S 046°32'15"E, mars 1994, P.J. Rakotomalaza, B. Lewis, J. McDonagh, M. Andrianarisata, M. Randriambololona, G. Rahajaso, A. Ramisamihantanirina a. B. Randriamampionona 191; Madagascar, Antsiranana, Ankarana Special Reserve, ca. 5 km NW of Park Village near Besaboba stream, 12°57'16"S 49°07'30" E, 90 m, №1712, 25 April 1993, D.K. Harder, M.C. Merello, S.G. Razafimandimbison a. T.G. Razafindrabaeva et al.; Vallee de l'Onilahy aux environs de Tongobory, Alt. 100–300 m, №2718, H. Humbert; Vallee Moyenne du Mandrare pres d'Anadabolava, Alt. 200–250 m, №12401, H. Humbert; Bassin de Reception de la Mananara affluent de Mandrare Pentas occidentales des Montagnes entre l'Andohahela et l'Elakelaka, au Vatazo (S. d' Imonty), Alt. 900–950 m, №14096, H. Humbert; Environs de Manombo (Sud-Ouest) Colline lasaltique d'Ambatomainty, Alt. 150 m, №20056, H. Humbert; De la Vallee de la Sakamena a la Vallee de la Sakoa (bassin de l'Onilahy) a l'Est de Betioky, Alt. 300 m, №29418, H. Humbert a. R. Capuron; Anatananarivo Ankazobe, Mahitsinjo, Au dessus du village de Mahitsinjo, Tampoketsa d'Ankazobe, 21.3.1999, 17°42'59"S 47°0'53" E, Alt. 960 m, №2999, T. Haevermans a. J. Rabenantoandro; Prov. Tulear, Beza Mahafaly Reserve Betloky, Parcelle, №2, 1743, 23°40' S 44°35' E, 150 m, 28 April 1987, Pete Phillipson; Toliara, Reserve de Naturelle Integrale d'Andohahela, №11, Parcelle №2, Piste vers Ambatoambo, 24°49'817"S 46°32'244" E, 30–50 m, 191, mars 1994, P.J. Rakotomalsa et al.; **Mozambique; Namibia:** Namibia: 11 March 1989, Peter Goldblatt a. J.C. Manning 8942; South West Africa, 7 mls. N. from Windhoek, in horizontal crevices of schist outcrop, on N.E. aspect, Alt. 5400 ft., №4773, E.A.C.L.E. Schelpe, 12.7.1954; Namibrand Karibib Otjosondou, auf den Marmorbergen im Sueden, in Felsspalten nach Regen, ca 1300 m, №4441, 28.9.66, R. Seydel; South West Africa, 7 mls. N. from Windhoek, in horisontal crevices of schist outcrop, on N.E. aspect, №4773, Alt. 5400 ft., 12.7.1954, E.A.C.L.E. Schelpe; **Nigeria; Rhodesia; Saudi Arabia:** N'dara (Taifa) Ebene u Berg 2500, febr 77, №2476, J.M. Hildebrandt; **Swaziland; Tanzania:** Tanzania Kilimanjaro, 1080 m, 04°15'30"S 037°52'27"E, 24 March 2006, R.E. Gereau a. G. Simon Laizer 6971; Tanzania Morogoro, 500 m, 06°01'38"S 037°44'01"E, 21 November 2000, C.J. Kayombo a. D. Hearn 3478; **Togo:** Westlich von Kpagounda, bei Kuwde, NW von Farende, Intensivkultur auf steinigem Boden im Hugelland in Felsspalten, auch auf Feldern unter Steinen, №900, 10.5.1978; **Transvaal; Uganda:** Acholi District, Ukuti, Chua, Dec. 1935,

Eggeling 2414 a. Agoro Rest Camp, Dec. 1932, Eggeling 832; **Cape Verde isl.:** isl. Sao Filipe: Foro, an der Strasse zu den Cha das Caldeiras, bei 1100 m Hohe, zwischen Steinen, an schniger Stelle, 1251, 30.10.1979, W. Lobin; **Sri Lanka.** – **Gen. distr.:** South Asia, Middle East, SW Asia, NE Africa, East Africa, Sub-Saharan Africa, South Africa, SW Africa.

**3. *A. dimorpha*** Pichi-Serm. 1962, Webbia 17, 1: 18, f. 2; id. 1963, Adumbr. 10: 321; Lawalree, 1969, Fl. du Congo du Rwanda et du Burundi, Pterid.: 4; Schelpe, 1970, Fl. Zamb.: 136, t. 42A; Schelpe a. Diniz, 1979, Fl. Mosamb. Pterid.: 140; Burrows, 1990, South. Afr. Ferns: 180; Thulin, 1993, Fl. Somalia 1: 9; Verdcourt B. 1999, Fl. Tropic. E. Afr.: 4. – *Actiniopteris radiata* sensu Hook., 1854, Ic. Pl. 10, t. 975, f. 1; id. 1854, Cent. Ferns: t. 75, f. 1 p. p., non *A. radiata* (Koenig ex Sw.) Link. – *A. dichotoma* sensu Hieron, 1900, in E.J. 28: 345, non *A. dichotoma* (Fossk.) Kuhn. – *A. australis* sensu Tardeu-Blot, 1952, Fl. Madag. 5, 1: 80, p.p non. *A. australis* (L. f.) Link; Demaret, 1955, Inst. Roy. Sc. Nat. Belg., Explor. Hydrobiol. Lac Tanganyika (1946–1947), 4, 2: 36 p. p. – *A. dimorpha* subsp. *diversiformis* Kornas, 1982, Bull. Jard. Bot. Belg. 52 (3–4): 282.

Described from Central Africa (Tanzania).

Typus: «Sudlichen Ostafrika (Tanganyika Terr.) Bezirk Mahenge: Sali, ca. 35 km sudlich Station Mahenge, 950 m, Ubesifluss, sonnige Felswand, 21.3.1932, H. J. Schlieben 1938» (BM).

Open spaces in a forest and on edge of forest, savannas. H = 200–1900 m asl.

**Distrib.:** **Angola; Burundi; Kenya:** Leopard Rock Camp, Meru Game Reserve, 140 miles ne. of Nairobi, Savannah, 3500 feet, 6244, Rolla M. a. Alice F. Tryon, 10 Sept. 1963; Kenya, Mathews Range, Alt. 1500 m, 474, 12.5.1978, F.N. Gachathi; West Suk District, Escarpment E of Turkwell Gorge, 13 Aug. 1978, Lye 9074; Machakos District, 3 km from Kyulu Station towards Nairobi, 10 Jan. 1964, Verdcourt 3881; Teita District, Tsavo East National Park, Irima Rock, by Irima waterhole, 14 Apr. 1974, R.B. a. A.J. Faden 74/433; Tanganyika, Masai District, №7014, About 38 km N. of Magadi at Nairobi road underneath rocks on dry hillside with Acacia and Sansevieria, 24.10.1955, E. Milne-Redhead a. F. Taylor; **Congo; Madagascar:** Vicinity of Zazafotzy on Route #7 between Ambalavao and Ihotsy, open forest and prairies, elev. 710 m, 30373, Thomas Crost, 2 Feb. 1975; Massif de Marivorahona au Sud-Ouest de Manambato (Haute Mahavavy du Nord district d'Ambilobe), 1200–1750 m, №25636, H. Humbert, R. Capuron; **Malawi; Mozambique:** Mocambique, Macanga (Furancungo), Monte Furancunge (Elefanto), vertante voltada nacconte, Alt. 1380–1265, 15.3.1966, №1783, Angelo Paroira, A. Sammonto a. A. Marques; **Rhodesia (N, S):** Southern Rhodesia Umtali, №533, 18.1.49, Fisher et Schweickert; **Somalia; Somaliland; Sudan; Tanzania:** Tanzania Kilimanjaro, 1980 m, 04°17'30"S 037°53'02"E, 10 January 2001, J.A. Mlangwa a. T. Mbuso 1297; Handeni District, Kideleko, 22 Apr. 1954, Faulkner 1412; Ufipa District, Milepa, 20 Feb. 1950, Bullock 2504; Kondo District, Simbo Hills, 14 Mar. 1928, B.D. Burt 1860; Bezirk Morogoro, Ulugurugebirge, N.W. ca 1150 m, Savannenhugel, Farn, gruppenweise zwischen Felsen Kiluguru, Kissegero, №3197, 3.1.1932, H.J. Schlieben; Bezirk Lindi, ca 160 km W. von Lindi, ca 500 m u.M., Kassessi, Umgebung, gr. Felagruppen, Farn in Gruppen haufig in Felarissen, №6367, 22.4.1935, H.J. Schlieben; Tanganyika, Songra District, №9225, By Lumecha Bridge about 21 km N. of Songea in crevices in exposed rocks above river, 970 m, 17.3.1956, E. Milne-Redhead a. F. Taylor; Bezirk Mahenge, Sali, ca. 35 km sudlich Station Mahenge, 950 m, №1938, 21.3.1932, H.J. Schlieben, Uberifluss, somige Felswand; Bezirk Mahenge, Sali, ca 950 m, Mbesifluss, sonnige Felswand am Ufer, reichlich Kipogoro, Liwuankala, №1938, 21.3.1932, H.J. Schlieben; Milepa, 20.2.50, 3500–4000 ft. Rocky ledges and crevices in the scarp forest, №2504, A.A. Bullock; **Transvaal:** S. Africa, N. Transvaal, Ranken's Pass, Waterberg, alt. 1500 m, № SAC 221, April 1973, G.J. de Joncheere; **Uganda:** Uganda, 1450 m, 00°40'N 034°10'E, 5 November 2002, P. K. Rwaburindore 5051; Uganda, 1176 m, 01°18'N 033°40'E, 19 May 2003, P. K. Rwaburindore 5585; Uganda North Buganda, 1200 m, 01°16'N 032°29'E, 15 June 1989, A.B. Katende 3711; Teso District, Mt Abela, SW at Katakwi, 10 May 1970, Lye Katende 5426; **Ethiopia:** Abyssinie, Eavoi de M.W. Schimper, 1853, №204; Ethiopia, Tibela, 16.10.1969, Th. Monod 13421; **Comoros:** He de la Grancle Comore-Sud Est entre Foubouni et Niou madzaha, Alt. 200 m, sur une coulce recente, №865, J.J. Floret, 10.2.1975; He de la Grancle Comore-Sud Est entre Foubouni et Niou madzaha, Alt. 200 m, №864, J.J. Floret, 10.22.1975; **o-b** Reunion. – **Gen. distr.:** Sub-Saharan Africa, East Africa, South Africa, West Africa, SW Africa.

**4. *A. pauciloba*** Pichi-Serm. 1962, Webbia 17, 1: 21, f. 3; Lawalree, 1969, Fl. du Congo du Rwanda et du Burundi, Pteridophytes: 4; Schelpe, 1970, Fl. Zamb.: 138, t. 4, 42, fig. B; Schelpe, 1977, Consp. Fl. Angolensis: 112; Burrows, 1990, South. Afr. Ferns: 181; Verdcourt B. 1999, Fl. Tropic. E. Afr.: 5. – *Actiniopteris australis* sensu Carruth. 1901, in Catalog. Afr. Pl. Welw. 2: 271, non. *A. australis* (L. f.) Link.

Described from the South-West Africa (Angola). Typus: «Angola, Pungo Andongo (inter 9 et 10° Lat. austr.) 3500 ped. alt., ad rupes gneisicas humo parco ast diviti tectas humidiusculas Praesidii sat frequens ast unico Barrancos de Catete, Med. Dec. 1856. Welwitsch, № 79» (BM).

In crevices and under rocks, tending to granitoid rocks, in forested areas. H = 500–1300 m asl.

**Distrib.:** **Angola; Zaire; Congo:** Katanga, Parc national de l'Upemba, №5224, G.F. de Witte; Katanga, Manono, Kayiba, Alt. 1140, №3343, fevrier 1948, G.F. de Witte; Ruisseau temporaire Kamimvu, affl. Luvua, 28°09'30"E, 7°40'S, №3205, 23.10.1987, Alt. 690 m, Paroi; Riviere Musioi, affl. Luvua, 28°05'E, 7°24'30'S, №3197, 23.10.1987,

Alt. 590 m, Paroi en pente; Riviere Luella, affl. Luvua, 28°15'30"E, 7°46'30"S, №3247, 25.10.1987, Alt. 690 m, Foret galerie, Lisiere; **Mozambique; Rhodesia (N, S):** Chakwenga Headwaters, 100–129 km, East of Lusaka, Central Province, Chirundu Escarpment, 70 km. WN of Chirundu, Southern Province, 24.1.1965, 750 m, №6365, E.A. Robinson; Northern Rhodesia, Namwala Dist. Bayowa, 4 miles north of Musa–Kafue Confluence, Kafue National Park, B.L. Mitchell 24/33, 22.12.1963; Salisbury Distr. Nordlich von Salisbury, 1500 m. u. M, №147, J.J. Schneller, 20.2.1977; Southern prov., Gwembe Distr., Lusitu river gorge NE of Changa, 28°26'E, 16°15'S, alt. ca. 700 m, J. Kornas, A. Medwecka-Kornas, 13.2.1973, №3280; **Tanzania:** Mbeya District, S end of Rukwa Rift, N of Ngerenge, 27 Feb. 1934, Michelmores 978 a. 35 km on Mbeya-Iringa road, left bank, just below Devil's Punchbowl, Mar. 1970, Wingfield 538A. – **Gen. distr.:** SW Africa, South Africa, West Africa, East Africa, Sub-Saharan Africa.

**5. *A. semiflabellata*** Pichi-Serm. 1962, Webbia 17, 1: 24, f. 4; id. 1963, Adumbr. 10: 323; Lawalree, 1969, Fl. du Congo du Rwanda et du Burundi, Pterid.: 3; Malla (Chairman) et al., 1976, Catalog. Nepalese Vasc. Pl. 7: 5 nom. solum; H. Ohba and Samal B. Malla, 1988, Himal. Pl. 1: 263; Burrows, 1990, South. Afr. Ferns: 178; Gurung, 1991, Ferns Beauty Nepalese Fl.: 8, pl. 1; Thulin, 1993, Fl. Somalia 1: 9; Verdcourt, B., 1999, Fl. Tropic. E. Afr.: 5. – *Actiniopteris radiata* (Sw.) Link var. *b sensu* Hook., 1854, Ic. Pl. 10, t. 976, f. 1–3; id. 1854, Cent. Ferns. t. 76, f. 1–3, non *A. radiata* (Koenig ex Sw.) Link. – *A. dichotoma* Mett. Rutenberg C. 1880–1889, Abhandlun. herausgegeben vom Naturw. Vereine zu Bremen 7 (1): 1–54; 7 (2): 198–214; 7 (3): 335–365; 9 (4): 401–403; 10(3): 369–396. – *A. dichotoma* Bedd. Ferns Brit. Ind. Suppl.: 13; Clarke, 1880, Trans. Linn. Soc. London (Bot.). 2, Bot. 1: 505; Bedd, 1883: 197, f. 98. – *A. radiata* Link 1902, Hope, 14: 266. – *A. australis* auct. non. (L. f.) Link; De Wild., 1909, Ann. Mus. Congo, Bot., Ser. 5, 3: 30; R.E. Fries, 1914, Schwed. Rhod.-Kongo Exp. 1911–1912, 1: 5 p. p.; Bonap., 1923, Not. Pterid. 14: 306; Demaret, 1955, Inst. Roy. Sc. Nat. Belg., Explor. Hydrobiol. Lac Tanganyika (1946–1947), 4, 2: 36 p. p.; Ito in Hara, 1966, Fl. East. Himal.: 458. – *A. australis* sensu Tardeu-Blot, 1952, Fl. Madag. 5, 1: 80, p. p.; id. 1954, Fl. Cameroun 3, Pterid.: 150, t. 20, f. 5–6, non. *A. australis* (L. f.) Link. – *Acrostichum dichotomum* Forssk.: Tardieu, 1958, Fl. Madag., Polypod. 1: 65–112; Orstom, 1988, List of Vasc. Pl. of Gabon with Synon.

Described from East Africa (Ethiopia).

Typus: «Ethiopia, Tertale, Pozzi di El Banno, si nota con frequenza, 2 Mag. 1939. Corradi 26» (Herb. Pic. Ser.).

Isotypus: Fl.

Crevices of rocks (basalt rock), in arid climate. H = 200–2600 m asl.

**Distrib.:** **Afghanistan:** Kabul; **Burundi:** Rubindi, prov. Bururi, rochers humides bord Tanganyika, alt. 780 m, 4°05'S 29°03'E, M. Reekmans, 7 March 1980, №8729; **Djibouti; Egypt (NE); India; Iran; Yemen; Cameroon:** Monts Mandara (Hossere oupay 1442 m, 15 km NNO de Mokolo), №6897, 15.9.1964, R. Letouzey; About 25 km NNW of Maroua, along the road to Mokolo. Rocky hill-slope, Alt. 450 m. 3.9.1964, №3006, W.de Wilde; **Kenya:** Northern Frontier Province, Mathews Range, Ngenga, 14 Dec. 1958, Newbould 3196; Fort Hall District, Thika, 18 Jan. 1948, Bogdan 1498; S Kavirondo District, Homa Mt. 2 Dec. 1934, Allen-Turner in C.M. 3608; Tanganyika, Masai District, №7020, Namanga on small rock knoll just above the hotel, growing under rocks with, 31.10.1955, E. Milne-Redhead a. F. Taylor; **Congo (E):** Kivu, Beni, Parc nat. Albert, vallee Kabilanature, nt. Bakuku, vers Kasindi, Alt. 1050m env., №11450, G.F. Witte, november 1954; Plaine au Sud du Lac Edouard (Congo Belge. Kivu), №8189, Alt. 1100 m, H. Humbert; Zaire, Mont Kakulawele Entre Pemba et Lungo, au sud de Golonde, 2520, 6.4.1987, 1400 m, Pente rocheuse; Zaire, Mont Mubwe, 29°45'E, 13°20'S, 2514, 6.4.1987, 1400 m, Pente rocheuse; **Madagascar:** N. Madagascar, Ambohitsi (Amber Gebirge) auf vulken «Grotim», Mart 1880, №3384, J.M. Hildebrandt; Plantes de Madagascar, recueillies par M. Baron, Recues le 25 juillet 1890; District d'Ambatondrazaka Madagascar, Recu ea Avril 1939, №390, M.G. Cours; Lac Alaotra–Est d'Ambandrika, riviere Manavandana, vegetation xerophile aur rochers siliceux, decembre 1944, A.M. Homolle; Petite foret rocailleuse seche, 850 m, avant la chute du Maningory, 15.12.1944; Vallee Inferieure de l'Onilahy, alt. 25–200 m, №5221, H. Humbert a. C.F. Swingle; Mont Vohipolaka au N de Betroka (Centre-Sud), №11709, Alt. 1200 m, H. Humbert; Mont Ambohipiraka au Nord-Est d'Ambilobe (vallee du Mananjeba), №32919, Alt. 300–400 m, H. Humbert a. G. Cours; S-Madagascar, SW of Ifotaka, 100 msm., terrestrial fern in Didiereaforest, №5423, 17.11.1938, H.J. Lam a. A.D.J. Meeuse; **Namibia; Nepal:** East Nepal, Dhara Pani, Tambur Bridge, alt. c. 300 m, 17.10.1963, H. Hara, H. Kanai, S. Kurosawa, G. Murata, M. Togashi, a. T. Tuyama; East Nepal, Dhara Pani-Tambur Bridge-Dhankuta, 17 oct. 1963, 6304992, H. Hara, H. Kanai, S. Kurosawa, G. Murata, M. Togashi, a. T. Tuyama; E. Nepal, Mohamabedi Khoa 400 m, Tamur Bridge 300m, 872266, 3 June 1972, H. Kanai, H. Ohashi, K. Iwatsuki, H. Ohba, Z. Iwatsuki a. P.R. Shakyia; E. Nepal, Teku Nala 800 m, Tamur Bridge 300m, 872266, 9 July 1972, H. Kanai, H. Ohashi, K. Iwatsuki, H. Ohba, Z. Iwatsuki a. P.R. Shakyia; Terhathum distr., en route from Iwa to Majhi, alt. 690 m., Hideo Tabata, Keshab Rajbhandari, Yoshikazu Shimizu, 29 July 1978, №11991; **Nigeria; Rwanda; Saudi Arabia:** N'dara (Taifa) Ebene u Berg 2500, febr 77, №2476, J.M. Hildebrandt; **Somalia; Somaliland; Sudan; Tanzania:** Bezirk Morogoro, Ulugurugebirge, N.W. ca 980 m, Savannenhugel, Farn in Gruppen unter Felsen, Kiluguru, Lunanahira, №3204, 6.1.1932, H.J. Schlieben; Tanzania Arusha, 1825 m, 02°42'38"S 036°42'04"E, 7 June 1999, J. Elia, P.B. Phillipson, W. Kindeketa a. G. Simon 5; Tanzania Arusha, 1400 m, 03°23'S 036°47'E, 2

April 2003, E. Mboya a. C.J. Kayombo 638; Urungwe, c. 2000, J.B. Phipps, 919, 27.2.1958, South bank of R. Mauora, Eastern Urungwe, Riverina, on damp shady earthy slope, local; Musoma District, Naabi Hill, 11 Apr. 1961, Greenway a. Myles Turner 10023; Mbulu District, Lake Manyara National Park, Ndala R. Falls, 8 Dec. 1963, Greenway a. Kirrika 11152; Pare District, near Vudee, 30 Jan. 1930, Greenway 2086; Zanzibar I., Sept. 1873, Hildebrandt 1104; Tanganyika, Songra District, №9224, By Lumecha Bridge about 21 km N. of Songea in crevices in exposed rocks above river, 970 m, 17.3.1956, E. Milne-Redhead a. F. Taylor; Tanganyika, Seronera N.E. to Naabi Hill. 3.12.1956, P.J. Greenway 9100; **Uganda:** Karamoja District, Moroto R., Feb. 1936, Eggeling 2971; Toro District, Katwe, Aug. 1941, Eggeling 4514; Mbale District, 9,5 km S of Tororo, 17 Feb. 1951, G.Wood 172; **Sri Lanka; Eritrea:** Prov. Eritrea, between Asmara and Nefasit, ca. 1800 m alt., K. Yamashita, S. Sakamoto a. K. Fukui, №1017, Fed. 1.1968; Prov. Eritrea, between Asmara and Nefasit, ca. 1800 m alt., K. Yamashita, S. Sakamoto a. K. Fukui, №1018, Fed. 1.1968; Prov. Eritrea, between Asmara and Nefasit, ca. 1800 m alt., K. Yamashita, S. Sakamoto a. K. Fukui, №1016, Fed. 1.1968; Prov. Eritrea, between Asmara and Nefasit, ca. 1800 m alt., K. Yamashita, S. Sakamoto a. K. Fukui, №1021, Fed. 1.1968; **Ethiopia; Zanzibar isl.; Ilot Bouzi isl.** (near the isl. of Mayotte): Ilot Bouzi, Mamoudzou, Ilot Bouzi, G.K. Mayotte, 4mars 2002, Barthelat F., C. Gomel a. B. Ali Sifari; **Mauritius isl., Socotra isl.:** Insel Socotra, Tamarid, 13 April 1881, №312, Dr. G. Schweinfurth; Insel Socotra, Kischen, 600 fut. 1 Mai 1881, №776, Dr. G. Schweinfurth; Socotra, Feb.-March, 1880, 144, Comm. Prof. Bayley Balfour, Aug. 1880; **Reunion isl.:** Reunion, Pavillon, along the road to Cilaos, R 18, Alt. c. 400-500 m, David H. Lorence, 27.3.1973. – **Gen. distr.:** NE Africa, East Africa, South Africa, Sub-Saharan Africa, West Africa, SW Asia, Middle East, South Asia.

**6. A. australis** (L. f.) Link, 1841, Fil. Sp.: 80; Tardieu-Blot, 1952, Fl. Madag., Polypod. 1: 80; Pichi-Serm. 1962, Webbia 17: 27, f. 5. – *Acrostichum australe* L. f. 1781, Suppl.: 444; Tardieu, 1958, Fl. Madag., Polypod. 1: 38–64. – *Acrostichum digitatum* x *australe* Lam. 1783, Enc. Bot. 1: 35. – *Asplenium australe* Swartz, Schrad. 1801, Journ. Bot. 1800 (2): 50. – *Belvisia australis* Mirb. 1803 (1802), Hist. Nat. Veg. 5: 115 (473); Tardieu, 1958, Fl. Madag., Polypod. 1: 65–112. – *Pteris australis* Thouars, 1811, Obs. Isl. Afr. Austr. 11. in Mulang. Bot. – *Acropteris australis* Link, 1833, Hort. Berol. 2: 56 (55); Tardieu, 1958, Fl. Madag., Polypod. 1: 65–112. – *Actiniopteris radiata* x *australis* Hook. 1860, Sp. Fil. 3: 276. – *Pteris dichotoma* var. *australis* Kuhn, 1867, Fil. Deck.: 18. – *Actiniopteris dichotoma* var. *australis* Kuhn, 1879, in v. Deck. Reis. 3 (3): Bot. 18. – *Blechnum flabellatum* Presl, 1836, Tent. Pterid. 103; Tardieu, 1958, Fl. Madag. Polypod. 1: 65–112. – *Pteris dichotoma* var. *elongata* Mett. ex Kuhn, 1868, Fil. Afr. 80.

Described from Reunion Island.

Typus: «31. Acrostichum des Isles de France et de Bourbon» (Herb. Linnaeus fil. in Herb. Smith n. 1622. 51. LINN) (Pichi-Serm., 1962).

Crevices of rocks, dry slopes.

**Distrib.:** **Madagascar:** Madagascar, G. Cremers 3611; Madagascar Toliara, Andohahela RN, 100 m, 24°50'S 046°40'E, 18 March 1987, G. E. Schatz 1281; **Malawi:** Malawi Southern: 1250 m, 16 January 1986, J.D. a. E.G. Chapman 7051; **Saudi Arabia; Mauritius isl.; Reunion isl.:** F. Badre ile de la Reunion, 826, Ravine St Gilles, 6 novembre 1973, Rochers pres du bassin du Cormoran; **Seyhelles isl. – Gen. distr.:** South Africa, East Africa, SW Asia, South Asia.

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