

Short Communication

**A TAXONOMIC REVISION OF THE GENUS *SELAGINELLA* (SELAGINELLACEAE: LYCOPODIOPSIDA) FROM PAKISTAN**

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**ABSTRACT**

The current paper represents taxonomic studies of genus *Selaginella* from Pakistan based upon the studying of plant specimens in different herbaria of Asia, Europe and North America. A total of six species viz. *Selaginella aitchisonii* Hieron., *Selaginella chrysocaulos* (Hook. and Grev.) Spring, *Selaginella jacquemontii* Spring, *Selaginella reticulata* (Hook. and Grev.) Spring, *Selaginella subdiaphana* (Wall. ex Hook. and Grev.) Spring and *Selaginella vaginata* Spring were reported; detailed descriptions of species, distribution pattern, ecology, general distribution and specimens examined from Pakistan were documented.

**Key words:** Flora, Lycophytes, *Selaginella*, Pakistan, Western Himalaya

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**INTRODUCTION**

The family Selaginellaceae belongs to lycophytes and is represented by a single diverse genus *Selaginella* P. Beauv., with 700–800 species worldwide (Jermy, 1986; Zhou and Zhang, 2015; Zhou *et al.* 2016). These species have been classified into five subgenera by Jermy (1986; 1990): *S.* subg. *Selaginella*, *S.* subg. *Ericetorum* Jermy, *S.* subg. *Tetragonostachys* Jermy, *S.* subg. *Stachygynandrum* (P. Beauv. ex Mirb.) Baker, and *S.* subg. *Heterostachys* Baker (Jermy 1986; 1990). Recently Zhou and Zhang (2015) have proposed a 6-subgenus system of *Selaginella* while Weststrand and Korall (2016) proposed a 7-subgenus system.

*Selaginella* has a wide distribution range in tropical and subtropical regions having more species diversity in rain forests and shady hills sides but some species can thrive in xerophytic conditions (Mickel *et al.* 2004).

Previously, little work has been conducted on *Selaginella* in Pakistan. Only two taxa were documented from Pakistan by Stewart (1972): *S. chrysocaulos* (Hook. and Grev.) Spring, *S. sanguinolenta* (L.) Spring f. *aitchisonii* (Hieron.) Alston recognized as *S. aitchisonii* Hieron., (Fraser-Jenkins, 2013). One additional newly recorded species, *S. jacquemontii* Spring were added to the cryptogamic flora of Pakistan by (Nakaike and Malik, 1992; 1993). Fraser- Jenkins (2013) reported names of six species of *selaginella* from Pakistan without any description, locality and habitat information. Previously *S. aitchisonii* Hieron. was reported from Mansehra District (Gul *et al.* 2016). All these species have been reported from Azad Jammu and Kashmir, Hazara Division of Khyber Pakhtunkhwa province and Murree

hills, Rawalpindi district of Punjab province, Pakistan (Gul *et al.* 2017). During our taxonomic revision of the genus a total of six species have been reported. The aims of current research were to revise the taxonomic status of genus *Selaginella* from Pakistan, with proper keys and diagnostic morphological and taxonomic features.

**MATERIALS AND METHODS**

The current study was based upon specimens deposited in the different herbaria of Asia, Europe and USA viz. RAW, ISL, PFI, KUH, HUP, PMNH, MUZU, DD, CAL, TNS, BM, K, NY and MO. All the images of type specimens were studied at access to JSTOR Global Plants project database (<https://plants.jstor.org>). All the specimens collected from Pakistan by various pteridologists in the past including type specimens at K, BM, NY, RAW, ISL, KUH, PFI, PMNH, DD and CAL was carefully examined. Descriptions of the species were documented based on morphological and taxonomic characters of specimens examined from Pakistan. The information of distribution pattern of species was documented from specimens deposited at all herbaria.

**RESULTS**

**Taxonomic treatment:**

**Key to species:**

1. Branches confined to upper stem, lower stem less branched, suberect; rhizophores developed at base of stem.....1. *S. aitchisonii*
- Lower stem well branched or with fewer branches; rhizophores borne at upper part of stem..... 2

2. Branches throughout with rhizophores..... 3  
 - Branches not throughout with rhizophores..... 5
3. Leaf margins ciliate; apex with a white bristle, strobili solitary ..... 2. *S. chrysocaulos*  
 - Leaf margins dentate; apex without a white bristle, strobili two or more..... 4
4. Sporophyte with compressed dorsal and more compressed ventral leaves.....3. *S. jacquemontii*  
 - Sporophyte without dorsal compressed leaves ..... 4. *S. reticulata*
5. Plants erect, thinly branched in the upper portion only ..... 5. *S. subdiaphana*  
 - Plants prostrate, branched throughout .... 6. *S. vaginata*

**1. *Selaginella aitchisonii*** Hieron., in Engler and Prantl, Nat. Pflanzenfam. 1(4): 674. 1902; Dixit (1992); Thapa (2002); Fraser-Jenkins *et al.* (2015); Fraser-Jenkins *et al.* (2017); Shalimov *et al.* (2019).

Type: PAKISTAN. Khyber Pakhtunkhwa, Kurram Valley, Shend Toi, Dec. 1879, *J.E.T. Aitchison 369* (syntype: B-200121871!; K, CAL); KYRGYZSTAN. Turkestan, Akburtaseh, *A. Regel 1878* (syntype: B-200121870!); KYRGYZSTAN. Turkestan, Musart Thal., *A. Regel 1877* (syntype: B-200121869!).

Syn.: *Selaginella sanguinolenta* (L.) Spring f. *aitchisonii* (Hieron.) Alston, Proc. Nat. Inst. Sci. India 11(3): 215. 1945; Stewart in Nasir and Ali, Fl. W. Pakistan 1: 1972.

Plants lithophytic, habit herbaceous, perennial, 6–32 cm, rhizophore present on whole of creeping stem. Stem branched, brownish, 0.3–0.8 mm in diameter,

**2. *Selaginella chrysocaulos*** (Hook. and Grev.) Spring, Bull. Acad. Roy. Sci. Bruxelles 10(1): 232. 1843; Stewart in Nasir and Ali, Fl. W. Pakistan 1: 1972; Iwatsuki (1975); Iwatsuki (1988); Dixit (1992); Nakaïke and Malik (1993); Thapa (2002); Zhang (2004); Zhang *et al.* (2013); Fraser-Jenkins *et al.* (2015); Fraser-Jenkins *et al.* (2017); Shalimov *et al.* (2019).

Basionym: *Lycopodium chrysocaulos* Hook. and Grev., Bot. Misc. 2: 401. 1831.

Type: NEPAL. *N. Wallich cat. no. 127* (mislabelled as "Mountains of Penang" [Malaysia], where the species does not occur) (holotype: K-001067450!, isotype: B-200147481!).

Plants mostly terrestrial, rarely lithophytic, perennial, erect, 4–24 cm with stolons at base, stem base elongated tuber with colorless scale like leaves. Rhizophores born at base of stem. Stem stramineous, 1–4 cm tall, 0.4–1 mm diam. at base, terete, sub-quadrangular; primary branches 5–10 pairs, forked, branchlets sparse, main stem 2.5–4 mm wide at middle, ultimate branches 2–3.5 mm wide. Axillary leaves of branches asymmetrical, narrow, ovate, elliptic, 1.5–2.5 × 1–1.5 mm, base ex-auriculate, margins ciliate at base. Dorsal leaves of main stem asymmetrical, smaller than those on branches; dorsal leaves of branches not approximate, widely separated, narrowly ovate, 0.5–1 ×

terete, glabrous; side branches develops into large branches; pinnately branched with sparse branchlets, primary branches of main stem 2.5–3.5 cm apart from each other, basal young leaves 0.8–1.6 mm broad. Axillary leaves narrow oblong, base peltate, obtuse; symmetrical, elliptic, 0.6–2 × 0.3–0.8 mm, margins lanceolate. Dorsal laves ovate, 0.7–1.4 × 0.3–0.7 mm, oblique at base, fringe sub-entire, apiculate at apex, ventral leaves Asymmetrical; ventral leaves oblong-obovate, 1–2 × 0.3–0.7 mm, decurrent at base, subentire at margin, apiculate at apex. Strobilus compact, tetragonal, solitary, 5–40 × 1–1.5 mm; sporophylls monomorphic, broadly ovate, margins slightly lacerate, acute at apex; megasporophylls and microsporophylls at intervals; microsporangium suborbicular; microspores orange yellowish, megasporopale yellowish.

Distribution and ecology: *Selaginella aitchisonii* Hieron. is terrestrial in moist and shady places at elevations of 1700–3000 m.

General distribution: Asia (Afghanistan, Kyrgyzstan, Nepal and Pakistan).

Specimens examined: PAKISTAN. **Azad Jammu and Kashmir:** Leepa valley, 31 Mar. 1989, *S- U- R. Kashmiri s.n.* (MUZU); Upper Sindh valley, 10 Sep. 1921, *R. R. Stewart 6791* (NY). **Khyber Pakhtunkhwa:** Shend toi, Kurram valley, 21 May 1879, *J. E. T. Aitchison 369* (DD); Shend toi ravine, Kurram valley, 31 May 1879, *J. E. T. Aitchison 369* (C, K); Pir ghal, South Waziristan, 16 May 1895, *J. F. Duthie 15622* (C, DD, K); Razmak, South Waziristan, 8 May 1927, *J. Fernerdez 1719, 1721* (K); Jalband Valley, upper Swat, 10 Sep. 1990, *C. R. Fraser-Jenkins 16990* (BM).

0.4–0.6 mm, subcordate at base, denticulate at margin, base ciliate, acuminate at apex. Ventral leaves on main stem asymmetrical, smaller than branches; ventral leaves on branches ascending slightly, ovate-lanceolate, 1.5–2 × 0.7–1.5 mm, acute at apex; base shortened, not overlapped at stem and branches, margins shortly denticulate, base ciliate. Strobili solitary, dorsoventrally complanate, 2.5–4.5 × 11.5 mm; sporophylls dimorphic, dorsal sporophylls having sporophyll-ptyrux, ciliate; ventral sporophylls ovate, denticulate at margin; megasporophylls present in basal portion of lower side of strobilus; microsporangia orbicular, microspores orange, megasporopale yellow brownish.

Distribution and ecology: *Selaginella chrysocaulos* (Hook. and Grev.) Spring is terrestrial in moist temperate forests at an elevation of 2200–2500 m.

General distribution: Asia (Bhutan, China, Nepal and Pakistan).

Specimens examined: PAKISTAN. **Azad Jammu and Kashmir:** Sirari, Poonch, 18 Feb. 1952, - *Stewart, Nasir and . Rashid s.n.* (RAW); Poonch, Tolipir, 23 Aug. 1956, *J. Muhammad 217* (KUH, RAW); Grala, Oct. 1956, *S. A. Khan s.n.* (PFI); Poonch, Tolipir, 9 Sep. 1991, *S-U-R. Kashmiri s.n.* (MUZU). **Khyber Pakhtunkhwa:** Chenglai, Buner, Aug. 1937, *S. Singh s.n.* (RAW); Nathiya gali, Abbottabad, 3 July 1946, *A. Ahmad 149* (RAW); Balakot, Mansehra, 24 Sep. 1964, *S. I. Ali s.n.* (KUH); Baragali Abbottabad, 20 Sep. 1991, *T. Nakaike and S. Malik 596, 1375* (PMNH, TNS). **Punjab:** Murree hills, Rawalpindi, 15 Aug. 1984, *A. Muhammad s.n.* (LAH old).

**3. *Selaginella jacquemontii*** Spring, Bull. Acad. Roy. Sci. Bruxelles 10(1): 226. 1843; Nakaike and Malik(1992); Fraser-Jenkins *et al.* (2015); Fraser-Jenkins *et al.* (2017).

Type: INDIA. Jammu and Kashmir, Pendjagam [Panchgam], *V.V. Jaquemont 926* (holotype: K-001067408!).

Syn.: *Selaginella sanguinolenta* (L.) Spring "forma indica" (Milde) Alston, Proc. Nat. Inst. Sci. India 11(3): 215. 1945; Stewart in Nasir and Ali, Fl. W. Pakistan 1. 1972; *Selaginella kashmiriana* R.D.Dixit, Census Indian Pterid. 14. 1984, nom. nov. for "forma indica".

Plant terrestrial, lithophytic, more or less matches with *Selaginella aitchisonii* Hieron. but markedly more robust with wider bilateral branches. Main stem stiff, wiry, branched throughout, brownish, 0.3–0.7 mm in diam. in lower part, stem terete, glabrous; upper branches bilateral with smaller ovate leaves, terminating with a small mucro, lateral leaves little bit larger and wider than dorsal leaves. Rhizophores at intervals throughout length of creeping stem and branches. primary leafy branches 5–8 pairs, 3 or 4 times pinnately branched, branchlets sparse, adjacent primary branches on main stem 2–4 cm apart, ultimate branches 0.8–1.8 mm wide including leaves. Axillary leaves on main stems larger than those on branches, narrowly oblong, base peltate, obtuse; axillary leaves on branches symmetrical, narrowly elliptic, 0.8–2 × 0.4–0.8 mm, margin lacerate-ciliolate. Dorsal leaves on branches imbricate, rhomboid-ovate, 0.7–1.5 × 0.4–0.8 mm, carinate, base oblique, peltate, margin subentire, apex apiculate, parallel to axis. Ventral leaves asymmetrical, ventral leaves on branches approximate, slightly ascending, oblong-obovate, 1–2 × 0.4–0.8 mm, basispic base decurrent, lacerate-ciliolate, acroscopic margin subentire, membranous, apex shortly aristate. Strobili weakly tetragonal, isomorphic compact, terminal, solitary, 10 – 60 × 1–1.5 mm; sporophylls similar to sterile leaves, monomorphic, broadly ovate, sharply carinate, margin slightly lacerate, apex acute; megasporophylls and microsporophylls at intervals; microsporangia suborbicular, rather thin; microspores

orange yellowish, megaspores pale yellowish, 5 – 6 per sporangium.

Distribution and ecology: *Selaginella jacquemontii* Spring is terrestrial in moist temperate forests and lithophytic with an elevation of 1000–2400 m.

General distribution: Asia (Afghanistan, India and Pakistan).

Specimens examined: PAKISTAN. **Azad Jammu and Kashmir:** Palandri, Poonch, 31 Aug. 1955, *J. Muhammad s.n.* (RAW); Arang kel, Neelam valley, 21 Oct. 1976, *Shehzad, J. Muhammad and Dilawar 780* (RAW); Leepa valley, 30 June 1989, *S- U- R. Kashmiri, N. Bano and N. Akhtar s.n.* (MUZU); Jhelum valley, May 1990, *M. R. Khan s.n.* (MUZU). **Khyber Pakhtunkhwa:** Mingora, Swat, 10 Aug. 1922, *R. R. Stewart 7357* (RAW); Bahrain, Swat, 10 July 1927, *R. R. Stewart 9458, 9459* (K); Chitral, Lowari pass, 20 Sep. 1945, *R. R. Stewart 16896, 17661* (RAW); Dir Lower, 15 Aug. 1946, *R. R. Stewart 17833, 17887* (RAW); Bahrain, Swat, 16 July 1953, *R. R. Stewart and A. Rehman s.n.* (RAW); Bahrain, Swat, 18 Aug. 1955, *A. Rehman 206* (BM, RAW); Matta, Swat, 12 Aug. 1952, *R. R. Stewart 24392* (RAW); Maina near Elam mountain Buner, 12 Aug. 1952, *R. J. Rodin 5474* (K); Balakot, 26 June 1953, *F. Schmid 190* (KYO); Lowari pass to Dir, Chitral, 6 Aug. 1954, *M. A. Siddiqui and A. Rehman s.n.* (RAW); Thandiani, Abbottabad, 25 July 1956, *R. R. Stewart 27801* (RAW); Thandiani, Abbottabad, 20 June 1974, *M. A. Siddiqui and E. Nasir 54* (RAW); Dir lower, 15 Aug. 1972, *F. Hussain 7101* (RAW); Mingora, Swat, 18 Apr. 1974, *M. A. Siddiqui and Y. Nasir 8* (RAW); Pattan, Kohistan, 30 July 1976, *Shehzad and Ashraf 33* (ISL); Marghuzar, Swat, 22 Sep. 1989, *M. R. Awan, Z. U. Khattak and M. Ashfaq s.n.* (PMNH); Besham Swat, Sharan forest Mansehra, 11 Oct. 1991, *T. Nakaike and S. Malik 79, 83, 383, 410, 466, 848, 1309, 1406, 1464, 1480* (PMNH, TNS).

**4. *Selaginella reticulata*** (Hook. and Grev.) Spring, Bull. Acad. Roy. Sci. Bruxelles 10(1): 233. 1843; Alston (1945); Dixit (1992); Fraser-Jenkins *et al.* (2015); Fraser-Jenkins *et al.* (2017); Shalimov *et al.* (2019).

Basionym: *Lycopodium reticulatum* Hook. and Grev., Bot. Misc. 2: 402. 1831.

Type: INDIA. Mountains of Ava, *N. Wallich cat. no. 124* (holotype: K-001067446!).

Plant terrestrial, habit herbaceous, stem slightly erect, mostly creeping, 0.4 – 1cm long, 1–4 mm diameter, branched. Leaves sessile, lateral leaves 0.8–2 × 0.8–1.2 mm, ovate, broadly lanceolate with leathery texture, acute at apex, margins dentate in middle, spines 0.5–0.2 mm. Middle leaves ovate, lanceolate, 0.6–1 × 0.1–0.4 mm. Axillary leaves, ovate, 0.9–1.3 × 0.5–0.8 mm, base rotundate, margins dentate, apex subacute. Ventral leaves ovate, 1.7–2 × 0.7– 1 mm, base rotundate, basispic base slightly denticulate, acroscopic base rounded, not

overlapping stem and branches, margin denticulate, apex subobtuse to subacute. Dorsal leaves ovate, 0.7–1 × 0.3–0.5 mm, oblique, margin thickened, distantly serrulate, apex acute to very slightly acuminate. Rhizophores in basal part or one-third creeping stem and branches, on ventral side in axils of stem branches. Main stem, much branched, slender, primary branches on intervals, 0.8–1.2 mm in diam. in lower part, second branches simple or forked. Strobili may be single or paired, flattened slightly, 0.4–0.8 cm, broadly linear. Sporophylls toothed, lanceolate, megasporangiate at base, microsporangiate at upper side; Megasporangium yellowish, pitted, 200–300 µm; orange, reniform. Microsporangium oval, brownish. Microspores 40–70 µm, trilete.

Distribution and ecology: *Selaginella reticulata* (Hook. and Grev.) Spring grows on banks and rocks in semi-open conditions with elevation of 1500–3000 m.

General distribution: Asia (India, Nepal and Pakistan).

Specimens examined: PAKISTAN. **Azad Jammu and Kashmir:** South of Muzaffarabad, 10 Sep. 1991, *S-U-R. Kashmiri s.n.* (MUZU).

**5. *Selaginella subdiaphana*** (Wall. ex Hook. and Grev.) Spring, Bull. Acad. Roy. Sci. Bruxelles 10(1): 232. 1843; Iwatsuki (1988); Dixit (1992); Thapa (2002); Fraser-Jenkins *et al.* (2015); Fraser-Jenkins *et al.* (2017); Zhang (2018); Shalimov *et al.* (2019).

Basionym: *Lycopodium subdiaphanum* Wall. ex Hook. and Grev., Bot. Misc. 2: 401. 1831.

Type: INDIA. Uttarakhand and Meghalaya: "Kamoon [Kumaun], *R. Blinkworth*" and "Montes Sylhet. *F. De Silva*" *N. Wallich cat. no. 136* (syntypes: K-001067487!, B-200147161-A!).

Plant terrestrial, habit herbaceous, mostly perennial, rarely annuals, lateral leaves sloping, acroscopic at base, broadly auriculate with fan shaped fringe of brownish cilia around auricle, denticulate above; lower leaves of stem becomes crowded, smaller, narrower and more sloping. Stems 8–32 cm, creeping or suberect. Rhizophores restricted to lower one-third part of main stems, 0.7–2 mm in diam. in lower part. Stem slender, sulcate. Axillary leaves ovate, 1.5–2.7 × 0.5–1.6 mm, in basal part cordate, margin in basal part ciliolate, in middle and upper dentate to denticulate, apex acuminate. Ventral leaves ovate to ovate-lanceolate, 1.5–3 × 0.8–1.6 mm, in base slightly auriculate, basiscopic base entire, acroscopic base enlarged, broadly overlapping stem and branches, margin ciliate-dentate at base, entire towards apex, apex sub-obtuse. Dorsal leaves ovate, 1.2–1.6 × 0.5–0.7 mm base obtuse or slightly subcordate, margin ciliolate to denticulate, apex acute to short acuminate. Strobili solitary, terminal, compact, 4 – 8 × 2 – 4 mm. Sporophylls dimorphic, dorsal sporophylls ovate, margin denticulate, sub-acute; ventral sporophylls ovate, margin ciliolate, apex acute. Microsporophylls

aristate, ciliate, microspores abundant, orange, Megaspores bright red, surface warty; microspore slightly-reddish, surface warty, megaspores found at bottom, orange. In autumn season curious triangular compressed, stilt-rooted green branch-tips of one cm length survive amongst mosses and rejuvenate in Spring season, although in permanent damp and moist habitats flourish throughout the year.

Distribution and ecology: *Selaginella subdiaphana* (Wall. ex Hook. and Grev.) Spring grows near semi-open banks at an elevation of 1800–2600 m.

General distribution: Asia (India, Nepal and Pakistan).

Specimens examined: PAKISTAN. **Azad Jammu and Kashmir:** South of Muzaffarabad, 20 Sep. 1991, *S-U-R. Kashmiri s.n.* (MUZU).

**6. *Selaginella vaginata*** Spring, Mém. Acad. Roy. Sci. Belgique 24(2): 87. 1850; Iwatsuki (1975); Iwatsuki (1988); Dixit (1992); Thapa (2002); Zhang (2004); Zhang *et al.* (2013); Fraser-Jenkins *et al.* (2015); Fraser-Jenkins *et al.* (2017); Shalimov *et al.* (2019).

Type: INDIA. Meghalaya, Khasiya (Khasia) [cited by Spring as "Gorval" i.e. Garhwal, Uttarakhand, in error], *W. Griffith*, (K). Also cited as syntypes were Bhutan, "Bootan, *W. Griffith*" (K); and South India, Tamil Nadu, "Nelligheries [Nilgiris], *G.S. Perottet 642* (lectotype: P-00523066! designated by Fraser-Jenkins *et al.*, 2017).

Misapplied name: *Selaginella chrysorrhizos* sensu, Stewart in Nasir and Ali, Fl. W. Pakistan 1: 1972.

Plants mostly terrestrial rarely lithophytic, habit herbaceous, perennial, creeping, 4–11 cm, sterile stem creeping, fertile erect. Rhizophores present at bottom of fertile stem and branches. Main stem having few branches, terete, sulcate; fertile stem pinnately branched, 4–11 cm length, stramineous, branchlets sparse, adjacent primary branches ultimate, 2–6 mm width. Axillary leaves may be asymmetrical or symmetrical, ovate-triangular, 1.3–2.5 × 0.7–1.4 mm, base ex-auriculate, sub-entire. Dorsal leaves may be symmetrical or asymmetrical, approximate on branches, contiguous, imbricate, lanceolate, ovate-lanceolate, triangular, 0.7–2.5 × 0.5–1.4 mm, carinate, sub-cordate at base, obtuse, shortly ciliolate at margin, apex acuminate, parallel to axis. Ventral leaves asymmetrical, mostly spreading, rarely deflexed, ovate, 1.4–2.7 × 0.7–1.4 mm, acute at apex; rounded at base, margins denticulate and sub-entire. Strobili mostly solitary, rarely in pairs, compact, complanate, tetragonal, 11–40 × 2.3–3.6 mm; sporophylls dimorphic, dorsal sporophylls ovate, sharply carinate, ciliolate at margin, ventral sporophyll ovate, carinate at margin; megasporophylls present in bottom or lower portion of strobilus; microsporangium transversely elliptic; microspores reddish color, megaspores mostly yellowish.

Distribution and ecology: *Selaginella vaginata* Spring forms flat mats on exposed road sides rocks and banks at altitude of 1500–2200 m

General distribution: Asia (Bangladesh, China, India, Nepal, Pakistan and Thailand).

Specimens examined: PAKISTAN. **Punjab:** Rawalpindi, 10 Apr. 1972, *M. A. Siddiqui and E. Nasir 7213* (RAW); Rawalpindi, 28 Oct. 1976, *Faden and Nasir 76* (NY); Rawalpindi, 15 Sep. 1986, *Y. Nasir, Rubina and Kashif 12186* (RAW).

## DISCUSSION

*Selaginella chrysorrhizos* Spring was reported by Stewart, (1972) in error for *Selaginella vaginata* Spring from Murree, Rawalpindi district, Punjab province, Pakistan and did not mentioned any voucher specimen number or herbarium record for that specimen which does not exist in Pakistan. R. J. Faden and E. Nasir, (1976) herbarium specimen at (NY) was also corrected by C. R. Fraser-Jenkins which was also studied by the first author. The given species is only reported from Bhutan, India, Myanmar, Nepal, Thailand and Vietnam but does not exist in Pakistan.

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**Author's contribution:** MI compiled the data, GJ and FGJ designed the experiment while WM helped in writing of manuscript.

**Conflict of Interest:** The authors declare no conflict of interest amongst themselves.

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