



## Article

**A new record of the fern *Actiniopteris semiflabellata* Pic.Serm. (Pteridaceae) in the United Arab Emirates**Vyacheslav V. Byalt<sup>1,2\*</sup> and Mikhail V. Korshunov<sup>3</sup><sup>1</sup>Komarov Botanical Institute RAS, Professor Popov str. 2, St. Petersburg, 197376, Russia\*Corresponding author. Email: [Byalt66@mail.ru](mailto:Byalt66@mail.ru), [VByalt@binran.ru](mailto:VByalt@binran.ru)<sup>2</sup>St. Petersburg State Forestry University, Institutskii Pereulok, 5, St. Petersburg, 194021, Russia<sup>3</sup>Government of Fujairah, Wadi Al-Wuraya National Park, P.O. Box: 1, Fujairah, U.A.E.Email: [mikh.korshunov@gmail.com](mailto:mikh.korshunov@gmail.com)

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**Abstract**

A brief introduction to the discovery of a newly recorded fern, *Actiniopteris semiflabellata* Pic.Serm. (Pteridaceae), in the United Arab Emirates (UAE) and its description are given.

**Key words:** *Actiniopteris semiflabellata*, new record, Pteridaceae, United Arab Emirates**Introduction**

During 2017–2020 we studied the flora of the Emirate of Fujairah, UAE, surveyed several places in this Emirate and collected native and alien plants (Byalt *et al.*, 2020). In March 2020, a rare fern, *Actiniopteris semiflabellata* Pic.Serm. (Pteridaceae), was found under a large boulder in the bed of a dry stream, a side gorge of the Wadi Sahm, 500 m a.s.l., in the southern part of Fujairah [Figs. 1–4].

This fern was subsequently found in greater numbers growing in damp cracks among rocks on a ridge at the side of a dry stream, at an altitude of 520–530 m. Along the stream bed where the fern was growing it was damp at the time of collection and nearby there were puddles of water that had settled after spring rains.

**Taxonomy**

[\*Actiniopteris semiflabellata\*fla](#) is an accepted name recorded in the taxonomic databases *Plants of the World Online* (POWO, 2020) and *Tropicos* (2020). Its native distribution range is reported to stretch from Africa to Nepal.

On the Arabian Peninsula, *A. semiflabellata* is found in Saudi Arabia (Collenette, 1985), Yemen (Wood, 1997) and Oman (Ghazanfar, 1992) but it is very rare everywhere, according

to the *Global Biodiversity Information Facility* (GBIF, 2020). For Fujairah and the UAE generally, this species has not been reported (Western, 1989; Böer, 2000; Jongbloed *et al.*, 2003; Karim and Fawzi, 2007).



Figure 1. *Actiniopteris semiflabellata* Pic.Serm. Photo by V.M.Korshunov



Figure 2. View from above of a dry stream in a side gorge of the Wadi Sahm. Photo by M.V.Korshunov



Figure 3. *Actiniopteris semiflabellata* Pic.Serm. in the moist crevices of shady rocks covered with moss. Photo by M.V.Korshunov





Figure 4. *Actiniopteris semiflabellata* Pic.Serm. in cracks in drier rocks. Photo by M.V.Korshunov

Our fern matches the original description of *Actiniopteris semiflabellata* given by Pichi Sermolli (1962: 24) and a [description](#) given in the *Pteridophytes of Africa* (2020) which is based on descriptions by Verdcourt (1999) and Roux (2009). The full citation of this description is given below:

“Scales of the rhizome of two kinds, entirely light chestnut, or with a narrow thick black shining central stripe and broad light chestnut edges. Fronds after their death becoming dry and having the lamina more or

less turned to one side owing to a slight gradual bend of the lamina in its lower part and of the stipe in its upper part. Fertile fronds up to 45 cm long. Stipe 1.5–2.5 times as long as the lamina, sparsely scaly. Lamina broadly cuneate to broadly obdeltoid with edges forming an angle of 55–70°, without a median notch, and consisting of a 4–(5) times dichotomous branch system. Branches of the first dichotomy unequal (8.5 and  $\pm 7$  mm) forming an angle of about 18–25°; branches of the second dichotomy unequal, the inner ( $\pm 8$  mm) longer than the outer ( $\pm 5$  mm); all the dichotomies being in the lower half of the lamina. Segments of the blade 10–25, narrowly ensiform, straight, tapering upwards, ending in a single hardened very sharp point, sometimes bordered by two or three small teeth. Basal part of the lamina glabrous above and sparsely scaly beneath. Scales light dull orange, straight to slightly twisted, narrowly lanceolate in outline, sparsely and coarsely toothed at the base, piliferous at the apex.

Habitat. Crevices in limestone, granite and lava rocks in open dry bushland and woodland, also dry evergreen forest and derived scrub.”

Distribution worldwide: Africa, Madagascar, Mauritius, Réunion, Oman, Saudi Arabia, Yemen, possibly also E. Nepal.

Distribution in UAE: Fujairah Emirate, Wadi Al Sahn, 5.4 km from E84 road (Maleha–Fujairah), 4.2 km northwest of Al Hail Castle (Al Hail Fort). Small wadi to mountain apex, 25° 6'10.20"N, 56°11'36.18"E, elevation 400–550 m: among stones and rocks of a side gorge of a big wadi, a few, 6.IV.2020, spor., V.V. Byalt & M.V. Korshunov 1827 (LE!).

So far, this is the only place that *Actiniopteris semiflabellata* has been found in UAE and this species should therefore be recommended for inclusion in the Red Data Books of the UAE and Fujairah. Along with this fern some other rather rare plants grow in the side gorge on rocky slopes, such as *Desmidorchis flava* (N.E.Br.) Meve & Liede (Apocynaceae) (Fig. 5), *Orobanche cernua* Loefl. (Plantaginaceae) (Fig. 6) and *Astragalus fasciculifolius* Boiss. (Fabaceae) (Fig. 7).



Figure 5. Endemic succulent plant for Arabia and rare plant for UAE, *Desmidorchis flava* (N.E.Br.) Meve & Liede, on the rocky slope of the ridge at 550 m.a.s.l. Photo M.V.Korshunov.



Figure 6. A wild parasitic species, *Orobanche cernua* Loefl., which is rarely found in the Hadjar mountains on rocky slopes. Photo by M.V.Korshunov.



Figure 7. The spiny shrub *Astragalus fasciculifolius* Boiss. is rarely found in the Hadjar mountains. Photo by M.V.Korshunov



In general, the flora and vegetation of this gorge is poor, having no more than 50–60 species of higher plants, and differs little from other gorges in the desert mountains of Fujairah.

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### **Authors' contributions**

Vyacheslav V. Byalt (VB) initiated the project: together with MK collected, preserved, identified and labelled plants, analysed material prepared by MK, wrote the manuscript, participated in discussion and revision of the manuscript, and coordinated the project.

Mikhail V. Korshunov (MK) together with VB collected, preserved and identified plants, and participated in discussion of the manuscript.

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