

## A New Species of *Polypodium* (Polypodiaceae, Pteridophyta) from Iran

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**Abstract:** A new species of *Polypodium* from Iran, *Polypodium iranicum* Mazooji, is described and illustrated. This new species is similar to *P. vulgare*, which differs in shape of frond, pinna and scales. It is also similar to *P. interjectum*, which differs in annulus of sporangium.

**Key words:** *Polypodium*, New Species, Pteridophyta, Taxonomy

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### INTRODUCTION

*Polypodium* L., one of the largest fern genera, is considered to comprise about 181 species in the world. Wendelbo (1976) made the first attempt to survey Iranian Pteridophytes. Later, Jenkins (1980) introduced *Dryopteris affinis* as a new treatment for a complex species in the European pteridophyte flora. *Cheilanthes coriacea* was reported by the same author in 1981. A record of *Cystopteris regia* was added to the fern flora of Iran by Denk (1998). Eskandari et al. rediscovered a rare species, namely, *Polystichum Lonchites* From Iran in 2008. The genus *Polystichum* along with introducing the new species *P. setiferum* in Iran was studied by Mazooji et al. (2005). A checklist of ferns and fern allies was provided by Khoshravesh et al. (2009).

During the preparation of a check-list of the Pteridophytes from Arasbaran forest in Iran, an undescribed species of *Polypodium* was found from the region.

### MATERIAL AND METHODS

A total of two individuals from type collection were studied. Different characters were carefully observed under the microscope and the micrographs were shot from different parts of the plant by Canon Digital camera Model Ixus 950. For scanning electron microscope (SEM), spores were coated with gold to a thickness of 35-40 nm. The samples were observed with a scanning electron microscope (Philip, XL model) and for morphology studies were used from stereomicroscope of Motic. Pictures were taken.

The specimens were identified by Page (1997), Jermy & Camus (1993) and Frey (2006). The voucher specimens are preserved in the herbarium of the Ministry of Jihad-e-Agriculture ("IRAN") at the Iranian Research Institute of Plant Protection (Tehran, Iran).

### RESULTS AND DISCUSSION

*Polypodium iranicum* Mazooji, sp. Nova (Fig.1)

*Ab Polypodium interjecum differt frond and pinna dichotomatus, and indurated cells are 12-13, ab P. vulgare, shape of scales is deltate to lanceolate, margin of scales is dentate in lengths.*

Type: Arasbaran Protected Area, Kaleibar to Asheghlou road, 1 kilometer to Masjed-lou village, on forest soil between rocks, 1320m, N 38°56', EO 46°45', 15.5.2008 (holotype: IRAN-45580); Arasbaran Protected Area, Ainaloo, on forest soil under the tree, 1454m, 22.6.2010 (isotype: IRAN-45581).

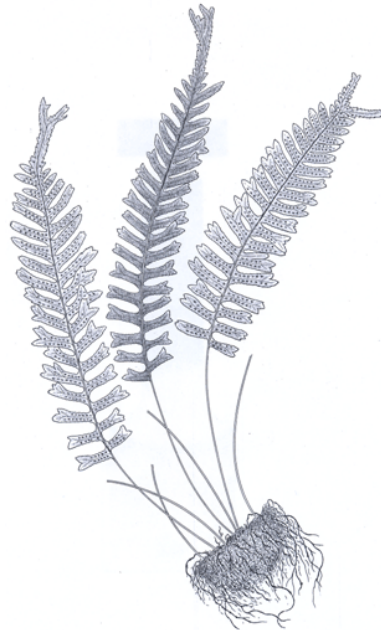
Plant epilittic or epiphytic, Rhizome long- creeping, 5 mm in diameter (Fig. 2A), Scales 3-4.5 mm long and ±0.5 wide at their base, deltate to lanceolate, base oblong (Fig. 2B), apex wispy, Stipes 9-11 cm long,

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green to slightly yellow without scales. Lamina 20-21 cm long and 3.5-4 cm wide, ovate, 1-pinnate, apex dichotomous and branches probably dichotomous again (Fig. 2E).

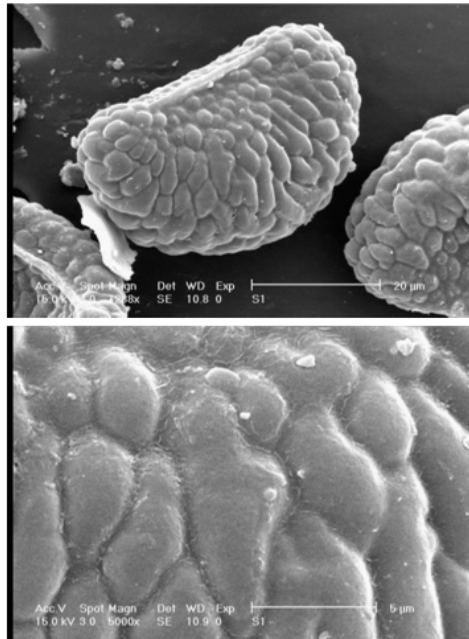
Rachises like stipe, green to slightly yellow, and circle. Pinnae in 18-20 pairs, ovate, longest 2-2.5 cm long and 0.5-0.6 cm wide, occurring in the middle of lamina and decreasing regularly in size towards the apex and base, veins forked, free. Sori orbicular along vein of pinna (Fig. 2C). Indusia absent. Sporangia 10 mm long and 10 mm wide, 12-14 annulus cells (Fig. 2D). Spores ellipsoidal, exospores 45.94  $\mu\text{m}$  long and 28.1  $\mu\text{m}$  wide, perispore papillate (Fig. 3A & B).



**Fig. 1:** *Polypodium iranicum*: Illustration of plant habit (Bar: 10 cm).



**Fig. 2:** *Polypodium iranicum*: A. long- creeping; B. Scale; C. Middle part of lamina; D. Number of indurated cells; E. Dichotomous apex of lamina (Bar: A, C & E. 10 mm, B. 0.5 mm, D. 50  $\mu\text{m}$ ).



**Fig. 3:** *Polypodium iranicum*: A & B. Spore.

**Distribution and Habitat:**

*Polypodium iranicum* is an epilithic and epiphytic in rain forest and is known from two localities.

*Polypodium iranicum* is similar in creeping rhizome, orbicular sori, pinna length and numbers of annulus indurated cell to *P. vulgare*; from which it clearly differs in its deltate with flexuous wavy apex scale rhizomes, its dichotomous end of frond lamina, pinna and marginal part of scale base is dentate.

**ACKNOWLEDGEMENTS**

The authors would like to thank Mehrdad Mehranfard for drawing the specimen.

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