

endosperm¹⁰. In the present study when the grains were exposed to phenol solution, only the pericarp showed colour development (dark brown) while the endosperm showed no colour change (figures 1 and 2). Thus the phenol colour reaction was confined only to the pericarp (pre-fertilization tissue).

From the results presented in table 1, it is evident that phenol colour reaction is controlled by a single gene. Similar genetic studies have been carried out on phenol colour reaction in other crop plants and these indicated that this character was controlled either by a single gene with two allelomorphs as in rice⁵ and *Setaria italica*⁸ or by a single locus with multiple alleles as in Emmer wheats⁷ or by one or two dominant genes as in bread wheat¹¹. In pearl millet, the positive phenotype is the dominant one and the gene symbol *Phc* is proposed.

In view of its genetic stability, the phenol colour reaction of the seed coat in pearl millet can be a useful marker to trace the geographical distribution of various land races and in seed identification procedures.

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POLYSTICHUM MAKINOI (TAG.) TAG.—A NEW RECORD FOR INDIA

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THE dryopteroid genus *Polystichum* is fairly widespread in the Indo-Himalayas. In the Western Himalayas itself, the genus is represented by 23 species¹⁻³ of which 13 are found in Pithoragarh district, the easternmost section of the Western Himalayas. During our survey we collected one more species, *P. makinoi* (Tag.) Tag., from Dhaj, Munyari and Namik (2400–2800 m). A perusal of the recent literature on the taxonomy and distribution of the species¹⁻³ shows that this species has not been reported from India although it was known from Nepal and Bhutan⁴. This species is widely distributed in S.E. China, Japan and Tibet^{4,5}.

P. makinoi is similar to two other Indian species *P. discretum* (D. Don) J. Smith and *P. piceo-paleaceum* Tag. *P. makinoi* differs from the former in having broad dark-coloured scales on stipe and rachis, and coriaceous lamina, concolorous and slightly dentate scales on stipe and rachis differentiate *P. makinoi* from *P. piceo-paleaceum* where the scales are restricted to stipe base and are bicolorous with ciliate margins.

Specimens examined: Punetha Pith. 1201, 1202, 1203, 1630; CAL Date of collection: July 1986, August 1987.

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**A NEW SPECIES OF ASPLENIUM L.
 (ASPLENIACEAE) FROM JAVADI HILLS OF
 NORTH ARCOT DISTRICT, TAMIL NADU,
 INDIA**

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DURING a floristic study of the North Arcot District of Tamil Nadu under the District Flora Scheme of the Botanical Survey of India, a fern species was collected from the Javadi hills. On scrutiny, it was found to be a new taxon since it could not be matched with specimens available either in the Madras Herbarium (MH), Coimbatore or at the Central National Herbarium (CAL), Calcutta. The specimen was therefore sent to the Kew Herbarium and its identity was confirmed as an undescribed new species of *Asplenium* L.

Asplenium lakshmananii Viswanathan sp. nov.

Rhizomes long creeping, in rock crevices, horizontal, clothed with fibrous roots, bearing a tuft of stipes. Scales many, appressed on rhizome, linear to linear-lanceolate, hair-pointed at apex, 2.5–3 mm long, 0.5–1 mm wide, dark brown, consisting of 4–10 rows of longitudinal latticed cells. Stipes 12–20 cm long, 0.8–1.2 mm thick, dark brown, dorsally grooved, glabrous. Rachis dark brown, similar to stipe, dorsally grooved. Lamina bipinnate, or rarely

tripinnatilobed at base, lanceolate or oblong-lanceolate, 8.5–20 cm long, 2.4–7.6 cm wide; pinnae 9–13 pairs with up to 1.2 mm long stalks; the pinnae above the lowest 1 or 2, the largest up to 4 cm long, 2.2 cm wide, lanceolate, with 2 or 3 pinnules on each side; upper pinnae well separated and lobed at apex. Pinnules few, ovate or obovate, posterior base cut down to the midrib or above the middle, cuneate at base, entire at margin, irregularly toothed and rounded or truncate at apex, toothed to 1.5 mm; veins prominent, once forked, ending in a tooth. Sori brown, elongate, placed along and on one side of the veins, opening towards midrib; indusium linear, attached to the vein. Sporangium 160–424 μ long, 80–160 μ wide, globose with 1 row of thick-walled cells of annulus; stalk consisting of 1 row of cells. Spores many, brown, 24–32 μ long, 24 μ wide, planoconvex; perispore winged, undulate, many-folded.

Asplenium lakshmananii Viswanathan sp. nov.

Asplenium affine Sw. affinis, sed laminis irregulariter pinnatis; pinnis ad apicem acutis vel obtusis; pinnis superis profunde separatis et ad apicem lobatis; pinnis stipibus curtis, c. 1.2 mm longis; pinnulis basalibus 3-lobatis; pinnulis angustiore dentatis, ad apicem truncatis vel obtusis, 14–20-dentatis; veins ad medium et prope dentem furcatis; sporis parvis, 24–32 μ longis, differt.

Asplenium lakshmananii sp. nov. is allied to *Asplenium affine* Sw. but can easily be distinguished by the characters given in table 1.

The Holotype *M. B. Viswanathan* 1270 and Isotypes *M. B. Viswanathan* 1270 were collected at an altitude of 1,100 m from Melpet of Javadi hills, North Arcot District, Tamil Nadu on 12.11.1986. Holotype is deposited in CAL. The isotypes are deposited in K, MH and Herbarium, Bharathiar University, Coimbatore.

Table 1 Comparative differences between the two species

<i>Asplenium affine</i> Sw.	<i>Asplenium lakshmananii</i> sp. nov.
Lamina regularly pinnate, acuminate at apex	Lamina irregularly pinnate, acute or obtuse at apex
Pinnae round and bluntly toothed at apex	Pinnae acute or obtuse at apex
Upper pinnae gradually smaller and merging into the deeply lobed apex	Upper pinnae well separated and lobed at apex
Stalk of pinnae up to 4 mm long	Stalk of pinnae up to 1.2 mm long
Basal pinnules 1-lobed or not	Basal pinnules 3-lobed
Pinnules acutely toothed, rounded at apex	Pinnules narrowly toothed, truncate or obtuse at apex
Each pinnule with 6–12 teeth	Each pinnule with 14–20 teeth
Veins forked at middle of pinnae, rarely near tooth	Veins forked at middle and near tooth
Spores 39–54 μ long	Spores 24–32 μ long