Thus, the present histochemical observations indicate that at least in *Foeniculum vulgare*, the endothelium is short lived. The distribution pattern of insoluble polysaccharides in endothelium shows that it does not differ significantly from other adjoining integumentary tissues and on the whole it is probably not very active. Nevertheless, it is evident that the insoluble polysaccharides, initially deposited in the integument are used up by the developing embryo through the intermediate nourishing tissue, the endosperm.

We are thankful to Dr. (Miss) Kanan Nanda and Miss V. M. Rajeswari, for helpful discussions. One of us (S. A.) acknowledges the financial assistance of the University Grants Commission.

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SHORT SCIENTIFIC NOTES

Inheritance of Anthocyanin Pigment in Linseed (*Linum usitatissimum* L.) Seedlings

Development of anthocyanin pigment was marked in several varieties of linseed seedlings. Varieties Neelum and EC. 77918 with pink seedlings in crosses with green seedling types, EC. 41599, EC. 1458 and EC. 12351 showed the monogenic dominance of pink pigmentation in seedlings. No segregation occurred when varieties within the same pigment groups were mated indicating the presence of the same gene for anthocyanin pigment. Pink seedling colour of Neelum—a released cultivar—can be used as a genetic marker in the purification of the variety as well as in the hybridization programme. These results have not been reported so far in linseed.

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A New Leaf-Spot Disease of *Capparis horrida* L.

During the course of an investigation on plant pathogenic fungi of District Jaunpur, infected leaves of *Capparis horrida* showing the presence of blackish patches on their surface, were collected during June–July, 1974.

Microscopic examination of the material revealed the presence of *pycnia*, which were densely scattered and embedded in the upper and lower surfaces of the leaf lamina. The pycnia were dark-brown to black in colour, sub-epidermal, globose to subglobose 162–215 μ in diameter, thick (30–60 μ) walled, and composed of 5–7 layers of elongated polyhedral brown cells; ostiolate, ostiole 20–40 μ wide and usually 45 μ in length; conidiophores hyaline, minute, 7·5–10·5 μ in length and ·75–1 μ in thickness. Conidia very minute, densely filling the cavity of the pycnidium.

The fungus has been identified as *Leptodothiorella* sp., the spermatial state of *Guignardia creberrima* Syd. by Dr. Punithalingam of C.M.I., Kew. Based on the perfect state the fungus may be named as *Leptodothiorella creberrima*.

The specimen has been deposited in C.M.I., Kew, at No. S 2 (IMI, 194875).

The fungus is a new record for India, and *Capparis horrida* is a new host record for this fungus.

The authors are thankful to Dr. Y. B. Singh, Principal, St. Andrew's College, Gorakhpur, for providing the facilities for the work and to Dr. Punithalingam, for providing the identity of the fungus. Thanks are also due to Sri S. K. Prabhuji, of our Department, for his kind help.

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Responses of Seeds and Isolated Embryos of *Codiaeum variegatum* Blume var. 'Karna' *in vitro*

The potentialities of endosperm for continuous growth and morphogenesis have been well established species. This note describes the *in vitro* in several responses of decoated seeds and isolated embryos of *Codiaeum variegatum* Blume var. 'Karna'. Following the aseptic technique, the cultures were raised

on a modified Whites' medium with 2% sucrose (BM) alone or along with various growth adjuvants and maintained under controlled conditions of temperature, light and humidity.

The decoated seeds containing a massive endosperm and fully differentiated embryo germinated to give rise to normal seedlings on BM, and on BM + CM (10%) alone or along with 2, 4-D (1 ppm). But on BM + CM (10%) + CH (500 ppm) + 2, 4-D (1 ppm), the seeds enlarged slightly and the endosperm started proliferating. In about six weeks, the endosperm produced a friable mass of yellowish-white callus. The latter was subculturable and comprised uninucleate cells of diverse shapes and sizes with dense cytoplasm and plenty of starch grains.

The fully differentiated isolated embryos, on a similar medium as above, developed proliferations from the radicular region and the cotyledonary leaves yielding a mass of yellowish-white, less compact tissue in five weeks. This tissue subsequently differentiated several roots which were normal and were studded with numerous root hairs. In addition the callus also contained several pockets of vascular tissues, and multicellular structures which often simulated stages in normal embryogeny.

We thank Professor M. S. Chennaveeraiah, Head of the Department of Botany, Karnatak University, for help and encouragement.

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A Note on the Inheritance of Pigmentation in the Coleoptilar Leaf of Pearl Millet (*Pennisetum typhoides* S & H)

A number of workers have given the inheritance of qualitative characters in pearl millet (Singh *et al.*, 1967, 1968 and 1969 ; Gill, 1969 and Yadav, 1971), but no information is available on the inheritance of pigmentation in this leaf.

The material for the present study consisted of inbred lines (BS 1 and BS 3 with purple pigmentation and BS 2 with normal green colour in the leaf), their F_1's F_2's and both the back crosses were sown at the R.B.S. College farm in a randomised block design with three replications during the crop season of 1970.

The mode of inheritance of this character was studied in the progenies of F_1, F_2 and the back crosses. The data showed the dominance of anthocyanin pigmentation in the F_1 generation. Details of the segregation in the F_2 and back-cross generation is presented in Table I.

TABLE I
Inheritance of pigmentation in the coleoptilar leaf of pearl millet

Cross	Segregation in		Chi-square in		P-value in	
	F_2	test-cross	F_2	test-cross	F_2	test-cross
BS 1 × BS 2	85P 33NP	56P 62NP	0·269	0·994	70·50	50·30
BS 3 × BS 2	67P 21NP	41P 38NP	0·590	0·162	50–30	70–50

P—Pigmented, NP—Non-pigmented.

In F_2 generation a good fit of 3 : 1 in pigmented to non-pigmented ratio was obtained. This result was also confirmed by the 1 : 1 ratio in the test-cross data showing the monogenic dominance of pigmentation in the coleoptilar leaf of the seedlings of pearl millet (*Pennisetum typhoides* S and H).

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Microchemical Test for Triterpenoids in Plants

Triterpenoids occur widely in plant kingdom. Their presence is important from chemo-taxonomic as well as pharmacognostic point of view. Triterpenoids are fairly stable compounds and can be spotted in cells of free-hand sections of fresh as well as old dry specimens. Stems and roots are suitable for the purpose, but in the case of leaves and other tender parts some modifications of this method are necessary.

To study the cells containing triterpenoids, it is necessary to prepare free-hand sections, which should not be very thin and must have some intact layers of cells. The dry stems or roots may be boiled in water to make them suitable for sectioning. Using of excess of water during sectioning should be avoided and the cut sections should be trasferred to a watch-glass directly from the razor blade. It is advisable to use glass needles in the whole procedure. The selected sections are completely dehydrated by immersing in acetic anhydride for two minutes. These are then washed thoroughly in hexane by giving two changes. At this stage, the sections are

divided into two batches, one for the treatment and the other as control for comparison. The first batch is treated with thyonil chloride in a dry specimen tube with cover for 2 minutes. These sections are then washed thoroughly in hexane (twice) and mounted in balsam. The control batch of sections is also mounted side by side with the treated ones for comparative study under microscope. The triterpenoid bearing cells appear olive-green, brown or violet in colour. The stain is permanent.

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Digestive Enzymes in the Pharyngeal Nephridia of *Pheretima posthuma*

The pharyngeal nephridia of the earthworm *Pheretima posthuma* are located as paired tubes in the 4th, 5th and 6th segments, among which the nephridia of the 4th and 5th segments open into the pharynx while that of the 6th segment opens into the buccal cavity. Though nephridia are primarily excretory in function[1], the pharyngeal nephridia, in view of their topographical position and in the absence of nephridial funnel are suspected to function as salivary glands.

The pharyngeal nephridia are dissected out, freed from the adherent tissue, washed in distilled water and homogenized in pyrex grinder. The enzymes are studied as per the method described earlier[2], and the hydrolized products were detected chromatographically. In these pharyngeal nephridia, amylase, melezitase, trehalase, chymosin, prolinase, prolidase, glycyl-L-leucine dipeptidase, glycylglycine dipeptidase, leucine aminopeptidase, aminotripeptidase and lipase are present but not other enzymes such as cellulase, sucrase, maltase, β-glucosidase, α-galactosidase, β-galactosidase, β-fructosidase, pepsin, trypsin and carboxypolypeptidase. Considering the presence of enzymes, the pharyngeal homogenates are able to hydrolyse a variety of substances. These experiments clearly indicate that these pharyngeal nephridia function as digestive or salivary glands.

I am indebted to Prof. R. Rakshpal, for the guidance and S.C.S.I.R., for the financial assistance.

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Free Pools of Amino Acids and Sugars in *Leptadaenia pyrotechnica* F.

Leptadaenia pyrotechnica F. (family asclepiadaceae) has some phenolic compounds and alkaloids which add to its medicinal value[1-3]. The analysis of free pools of amino acids and sugars gave the following results :

Leptadaenia pyrotechnica stem has six amino acids : lysine (8·9%), arginine (14·6%), alanine (14·7%), threonine (13·0%), methionine (9·4%), isoleucine (9·8%) and two dipeptides : *dl*-alanyl-*l*-alanine (18·5%), glycyl-*l*-alanine (11·2%). The presence of dipeptides was further confirmed by the total acid hydrolysis.

Total sugar content of the stem tissue was 8·7 mg/gm wet wt. chromatographic analysis revealed the presence of raffinose (10·8%), sucrose (33·4%), glucose (35·2%) and fructose (20·8%).

Authors are thankful to Professor A. K. Dattagupta, and Miss Neelam Ghai, for the guidance and inspiration.

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