refractive index from one concentration to another is generally found to be only in the fourth decimal place. Hence a very sensitive refractometer is needed for accurate measurement of n_{12}. A simple empirical modification of equation (1) is proposed, which eliminates refractive index measurement.

The equation proposed is

$$\mu = 0.98\, B \sqrt{a_0}. \qquad (3)$$

Employing a set-up of a crystal-controlled transistor oscillator using a crystal of 1 MHz and a very sensitive variable capacitor (0.250 pF in steps of 0.05 pF), the capacitance of the cell with and without a dilute solution of the polar compound in the non-polar solvent used was found. From the change of capacitance the static dielectric constant of the solution ε_{12} was calculated. This was repeated for five different concentrations. Refractive index was also measured for each dilute solution using the sodium D line in an Abbe refractometer at room temperature. From the plot of ε_{12} vs W the slope a_0 and from the plot of n_{12}^2 vs W the slope a_∞ were found. In the present work the slopes were evaluated using computer-aided curve fitting by the least-square method. Using (1) and (3) the dipole moments were calculated for several polar compounds. The results are given in table 1. The solvents used were benzene for some compounds and 1,4-dioxane for the rest. Most of the experimental data are taken from refs. 7–9.

It is clear from table 1 that a_∞ is small compared to a_0 and the value $(a_0 - a_\infty)^{\frac{1}{2}}$ is empirically found to be more or less equal to 0.98 $(a_0)^{\frac{1}{2}}$.

The proposed equation has been applied to a variety of polar molecules, whose permanent dipole moments range from 1.14 D to 8.12 D. The results obtained agree well with those by the Higasi method. The proposed equation gives equally accurate results but at the same time refractive index measurements are not needed. Thus the method can be used in any laboratory to find dipole moment of a polar molecule from measurements on dilute solutions in a non-polar solvent. The method does not require a costly refractometer but only a simple RF arrangement to measure change in capacitance.

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UNRECORDED PATHOGEN ON BAMBOO CAUSING BLIGHT IN INDIA

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BAMBUSA ARUNDINACEA (Retz.) Willd. is used for scaffolding in construction of buildings, in agricultural implements and in paper industries in India. Recently, a serious leaf blight was noticed in the forest nursery of the College of Agriculture, Dharwad. The intensity, calculated from per cent leaf area infected, was as high as 38.26%.

Infected leaves showed reddish to dark brown lesions with a grey centre, oval to elliptical in shape. Lesions were longitudinally distributed over the leaf lamina and measured 2–4 × 1–2 mm. Occasionally, they coalesced to give a blighted appearance. Culture of *infected* leaf bits on potato dextrose agar consistently yielded a species of *Exserohilum*. Colonies were pale greyish brown, later turning to dark brown. Conidiophores cylindrical, simple, geniculate, olivaceous brown, 2–6-septate, 40–180 × 4–8 μm; conidia acrogenous, elliptical or narrowly obclavate-rostrate, brown, thick-walled, subhyaline at the apex, usually straight, 1–15-septate, 29.6–130.0 × 8.0 × 25.0 μm. Cultural and morphological characters of the pathogen were found to agree with those of *Exserohilum halodes* (Drechsler) Leonard and Suggs anamorph of *Setosphaeria rostrata* Leonard. The culture of the fungus has been deposited in CMI, with accession No. IMI 315520.

A-week-old sporulating culture was successfully

used to produce artificial infection on healthy bamboo seedlings. Typical symptoms were noticed on leaves 7 days after inoculation. Review of the literature revealed that *E. halodes* has been reported on several graminaceous hosts[1,2]. However, the present observation constitutes a new host record for *E. halodes* in India.

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INHERITANCE OF A PUCKERED LEAF MUTANT IN GROUNDNUT (*ARACHIS HYPOGAEA* L.)

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A plant with abnormal leaf characteristics was observed in groundnut variety OG 66–6–1. The plant, which was dwarf and compact, had puckered leaves (partially crinkled) with yellow stripes along the margin, with the exception of a few older leaves which had normal leaf phenotype. It had sequential flowering like the other plants in OG 66–6–1. The plant was harvested and progeny-rowed following the selection of puckered leaf plants in each generation till the phenotype was established. It was designated puckered leaf mutant (PLM). While such leaf characters may not be of any practical significance to groundnut breeders, morphological variants like this might be useful as marker traits in genetic studies.

The radiation-induced and/or naturally occurring mutants reported for leaf characters in groundnut are crinkle, curly, imperipinnate, lupins, brachytic, cup, willow, rusty, mosaic, multiple leaflets, corduray, flop, and Gujarat narrow leaf. There are also several chlorophyll-deficient mutants (xantha, chlorina, virescent, aureus, lutescens, etc.)[1–5]. However, PLM, with the above-mentioned characteristics, was not reported earlier in groundnut.

Parents and F_1, F_2 and backcross generations of the two reciprocal crosses involving normal leaf parents J 11 and MK 374 with PLM were grown in the 1984 rainy season at ICRISAT Center. Observations of leaf character were recorded for individual plants. The data were subjected to χ^2 analyses for testing the genetic ratio, after correcting for continuity following Yates[6].

The F_1 plants from both straight and reciprocal crosses of J 11 and MK 374 with PLM showed normal leaves.

The data for F_2 from these crosses were individually analysed for various F_2 ratios (table 1). A good fit to a 13:3 ratio of normal vs puckered leaves was observed in all crosses. The total and pooled χ^2 values were also nonsignificant ($P=0.01$) for a 13:3 ratio.

The BC_1 (F_1 backcrossed with PLM) showed a good fit for a 1:1 ratio of normal vs puckered leaves at 0.01 probability in all the crosses except (MK 374 × PLM) × PLM, for which the χ^2 value was significant at 0.05 probability (table 2). Similarly BC_2 (F_1 backcrossed to parent with normal leaf) produced only plants with normal leaves, except in

Table 1 *Chi-square test of various F_2 ratios of plants segregating for normal vs puckered leaves in two reciprocal crosses of groundnut*

Crosses	Leaf phenotype		χ^2			
	Normal	Puckered	3:1	13:3	15:1	9:7
J 11 × PLM	43	8	2.36	0.31	7.76**	16.33**
PLM × J 11	68	16	1.58	0.01	23.66**	20.82**
MK 374 × PLM	26	2	4.76*	1.77	0.34	15.24**
PLM × MK 374	35	5	3.30	1.03	2.66	15.86**
Total (4 d.f.)	—	—	12.00*	3.82	34.42**	68.25**
Pooled (1 d.f.)	172	31	10.24**	1.61	28.20**	66.91**
Heterogeneity (3 d.f.)	—	—	1.76	2.20	6.22	1.34

Significant at *$P=0.05$, **$P=0.01$.