of other menispermaceous members studied by Gibbs[1] are presented in table 1. Uniformly positive results are obtained for alkaloids, cigarette test, hot water test, Liebermann-Burchard test, phenols and Salkowski test. Uniformly negative results are obtained for anthroquinones, Ehrlich test, HCl/methanol test, HCN test 'A', hydroxy quinones, indoles, Juglone test 'A', *Labat test, lignans, leucoanthocyanins*, Maule test, raphides, Shinoda test and Syringin test. The tests for anthroquinones, hydorxyquinones, indoles, *lignans and triterpenoid/steroids and cigarette*, Labat, Maule and Shinoda tests are unrecorded earlier, and the results of the rest of the tests are in conformity with those of Gibbs[1], on the taxa studied by him.

There are conflicting reports about the occurrence or absence of saponins and tannins. Earlier workers[1] reported the absence of saponins in several taxa and recorded their presence or probable presence only in a few. Using Saponin test 'A' on the leaves of *Cocculus carolinus* and *Menispermum canadense*, Gibbs[1] obtained doubtful and negative results respectively. The present observations indicate the absence of saponins in both the taxa. The earlier workers[1] also reported the probable presence (*Cocculus*) or absence (*Menispermum* and two species of *Cocculus*) of tannins. Using tannin test 'A' on the leaf material Gibbs[1] recorded the presence of tannins in *C. carolinus*, *C. trilobus* and *M. canadense*. In the present study, it is observed that the tannins are absent in *Tinospora* and present in the stem of *C. hirsutus* but their presence is doubtful in the leaves.

A perusal at the previous[1] and present chemical data suggests that the Menispermaceae fall in line with the other families of Buccheim's[2] Ranunculales and show several similarities in chemical characters with the Berberidaceae and the Lardizabalaceae. These three families resemble one another in the invariable absence of leucoanthocyanins, syringaldehyde, napthoquinones and ellagic acid and in the presence of triterpenoids and similar phenolic compounds, such as kaempferol and caffeic acid. Further, the Menispermaceae resemble the Berberidaceae inthe presence of similar group of alkaloids, and negative results for aucubin glycosides and HCl/methanol test. The Menispermaceae resemble the Lardizabalaceae in the absence of myricitin and delphinidin.

However, the menispermaceae strike a discordant note and stand apart from Ranunculales in the presence of indole-erythrinane and morphine alkaloids and viburnitol and quercitol cyclitols and absence of cyanidin, sinapic and ferulic acids[1].

Though the available chemical data derived from about 55 species out of a total of 350 species seem to support the affinities of the Menispermaceae with the Berberidaceae and the Lardizabalaceae as has ben suggestive on anatomical[3,4], cytological[5], embryological[6] and palynological[7] grounds, a study of a large number of taxa is necessary to corroborate the same.

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1. Gibbs, R. D., *Chemotaxonomy of Flowering Plants*, I–IV, McGill-Queen's Univ. Press, Montreal and London, 1974.
2. Buchheim, G., in *A. Engler's syllabus der pflanzen-familien*, 12th Ed., (ed.) Melchoir and Werdermann, Berlin, 1954.
3. Metcalfe, C. R. and Chalk, L., *Anatomy of Dicotyledons* I, Oxford University Press, London, 1950.
4. Behnke, H. D., *Taxon*, 1971, **20**, 723.
5. Darlington, C. D. and Wylie, A. P., *Chromosome Atlas of Flowering Plants*, George Allen and Unwin Ltd., London, 1955.
6. Sastri, R. L. N., *Biol. Rev.*, 1969, **44**, 291.
7. Erdtman, G., *Pollen morphology and plant taxonomy*, Hafner Publishing Co., New York, 1971.

OCCURRENCE OF LEAF BLIGHT ON GROUNDNUT

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GROUNDNUT (*Arachis hypogea* L.) is mainly grown as an unirrigated oilseed kharif crop in Rajasthan. There was a long dry spell during the monsoon season of 1979–80 and 1980–81 and the groundnut crop was observed to suffer from leaf blight disease caused by *Dreschelera spicifera*. (Bain.) van Arx.

The disease symptoms started with pale yellow area at the tip of leaf lamina where blackish brown lesion developed. The lesions spread in the form of V-shaped chlorotic zone towards petiole and gives blighted appearance (figure 1).

The pathogen has been identified as *D. spicifera* the state of *Cochliobolus spicifer* Nel. The conidiophores are dark, brown, septate, unbranched with scars of conidial attachment. The conidia were brownish, thick-walled, cylindrical to avoid, 2–5 celled predominantly 4-celled, measuring 18–40.5 (30.9) μ in length and 7.5–16.5 (12.0) μ in width. The typical

Figure 1. First leaflet is healthy, second, to fifth showing progressive disease development starting from the tip in a typical V-shaped manner.

disease symptoms were reproduced after 72 hr of inoculation with spore suspension of the organism.

This pathogen has been reported on cotton[1], tobacco[2] and brinjal[3]. It seems to be the first report on groundnut in India. The culture has been deposited with CMI under Herb. No. IMI 259681.

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1. Bedi, P. S., Tripathi N. N. and Suryanarayan D., *FAO Plant Prot. Bull.*, 1967, **15**, 77.
2. Suryanarayana, D. and Parashar R. D., *FAO Plant Prot. Bull.*, 1969, **17**, 92.
3. Singh, D. V., Raychoudhuri, S. P. and Seth, M. I., *Curr. Sci.*, 1970, **39**, 181.

GAMMA INDUCED YELLOW TESTA COLOUR MUTANT OF GREEN GRAM CV T44

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THE mutation breeding work in green gram (*Vigna radiata* L. Wilczek) has been taken up to improve the economic traits leading to grain yield. As a result of gamma irradiation of green gram (variety T44), several mutants of different testa colours were screened at M_2 generation. Earlier reports also indicate that many mutants for varied testa colours have been induced in pulse crops (red gram[1], green gram[2,3], khesari[4] and soybean[5]) following radiation mutagenesis. Besides, some high yielding mutants of green gram have been induced by gamma irradiation[2,6]. In the present communication we report a yellow testa colour mutant that gives greater yields in comparison with its parent.

The cultivar T 44 exhibits a normal plant type with spreading and profuse branching, and the seeds are of green testa colour. Two hundred seeds (8–10% moisture) of the cultivar were exposed to gamma rays (^{60}Co source) at 5, 10, 20, 30 and 40 kR doses. The M_2 lines were raised from M_1 progenies following plant to progeny method. Out of a number of mutant lines in M_2 generation, a yellow testa colour mutant was scored from 20 kR gamma dose.

The mutant plant could easily be isolated from the mutagenic population due to green colour of its stem, branches and leaves in contrast to the slightly reddish colour of the parent plants. The segregation of a total of 98 plants in green and yellow testa colour in the ratio of 3:1 (78 and 20 plants, respectively) at M_2 generation revealed that the mutant phenotype was due to a recessive gene (x^2 values: parent, 0.22; mutant, 0.67). The data for the mean performance of the parent and the mutant, for certain yields and the yield contributing characters obtained from 10 random plants, from each of the 4 replications at M_3 generation were compared by Student 't' test. It is evident from the data (table 1) that all the characters present in the mutant under reference were superior to its parent. In addition, a significant difference for the number of pods/ plant, number of seeds/pod and

TABLE 1

Comparison of mean performance of the parent and mutant for certain yield and yield attributing traits in M_3 generation of green gram

Character	Parent	Mutant
Plant height (cm)	33.18 ± 0.19	34.24 ± 1.12
Number of branches/ plant	3.52 ± 0.11	3.71 ± 0.12
Days to flowering	32.00 ± 2.16	34.26 ± 2.54
Number of inflorescences/plant	10.50 ± 1.20	10.23 ± 0.19
Pollen sterility (%)	4.40 ± 0.17	4.62 ± 1.17
Number of pods/ / plant	31.8 ± 1.26	45.16 ± 1.11**
Length of pod (cm)	6.63 ± 0.17	7.02 ± 0.14
Number of seeds/pod	10.57 ± 0.19	12.33 ± 0.21*
1000-grain weight (g)	38.50 ± 1.34	35.20 ± 1.36
Grain yield/plant (g)	10.80 ± 0.22	15.40 ± 0.18**

Significance * $P < 0.05$, ** $P < 0.01$