SHORT SCIENTIFIC NOTES

Extractive Spectrophotometric Determination of Ce(IV) with *p*-Anisidine

A new and simple extractive spectrophotometric method for the determination of Ce(IV) with *p*-anisidine is worked out. The radish violet complex has an absorbance maximum at 510 nm. at pH 2·0. The colour of the complex is not stable in aqueous medium for a long time, however, if extracted with organic solvent like isoamyl alcohol, isobutyl alcohol, chloroform, etc. the colour is stable for several days. Beer's law is valid up to 20 ppm. As low as 0·5 ppm of Ce(IV) can be estimated. Molar absorptivity is 1366. Sandell's sensitivity calculated by using formula $ss = 10^3$ AC min. is 0·1 $\mu g/cm^2$. Composition of the complex according to Job's method of continuous variation is 1:2. The presence of Cu^{++}, Ni^{++}, Co^{++}, Mg^{++}, Mn^{++}, other lanthanides, Cl^-, Br^-, NO_3^- in tenfold excess can be tolerated in the estimation of Ce(IV).

Recommended Procedure

An aliquot of the solution containing up to 20 μg of cerium is mixed with 5 ml of the reagent (1%) and the pH of the mixture is adjusted to 2 using KCl–HCl buffer. The solution is diluted to 25 ml and shaken with 10 ml of isoamyl alcohol in a separating funnel. After separation of the two layers, the absorbance of the organic layer is measured at 510 nm after appropriate dilution.

Department of Chemistry,
Ramnarain Ruia College,
Bombay 19,
January 5, 1976.

R. T. SANE.
P. P. HONAVAR.
S. N. JOSHI.

Chemical Studies on *Bauhinia racemosa*

The stem bark of *Bauhinia racemosa* (Fam.: Leguminosae) has been used in the indigenous system of medicine against the infection of malaria, diarrhoea and dysentery[1]. Since no chemical work on this plant species is on record, a preliminary chemical study on its stem bark has been presented.

Dried and pulverised stem bark was thoroughly extracted with petroleum ether (60°–80°) in a soxhlet. The extract was concentrated and subjected to chromatographic resolution over Brockmann alumina. Elution of the column with petroleum ether (60°–80°) furnished a white waxy mass crystallising from acetone as white shinning flakes, m.p. 61·0°; found C, 85·08; H, 14·24; calculated for $C_{28}H_{58}$, C, 85·56; H, 14·77; NMR ($CDCl_3$) characteristic of long chain alkanes, (δ 0·86, *t*, for two terminal methyl groups and δ 1·30, envelope, for polymethylenes). The compound is probably octacosane (reported m.p. 61·5°)[2].

Benzene eluates upon concentration and cooling gave a white residue which recrystallised from absolute ethanol as needles, m.p. 195°, gave Liebermann Burchard test positive for triterpenes; I.R. ν_{max} (cm^{-1}) 3300–3400 (–OH). With acetic anhydride and triethyl amine at room temperature it furnished an acetate, m.p. 236–237° giving M^+ at m/e 468 and other prominent fragments at m/e 453, 408, 393, 218 (100%) 203 and 189. The mass fragmentation pattern is in agreement with that of β-amyrin acetate. Thus the parent compound was characterised as β-amyrin and itsi dentity confirmed by its m.m.p, co-TLC studies, I.R. and the m.m.p. of the derivatives with those of the corresponding authentic samples. Further elution of the column with benzene, chloroform (3:1) yielded β-sitosterol, m.p. 135–136° which gave an acetate, m.p. 126–127° and a benzoate, m.p. 144–145° and its identity wae confirmed by m.m.p., co-TLC and superimposable I.R. with that of its authentic samples.

Thanks are due to Dr. A. B. Ray of the Department of Medicinal Chemistry, Banaras Hindu University, for supplying an authentic sample of β-amyrin.

Department of Pharmaceutics.
Institute of Technology,
Banaras Hindu University,
May 6, 1976.

ANAND PRAKASH.
RATTAN LAL KHOSA.

1. Chopra, R. N., Nayar, S. L. and Chopra, I. C., *Glossary of Indian Medicinal Plants*, C.S.I.R., New Delhi, 1956, p. 34.
2. Weast, Robert, C. and Selby Samuel, M., *Handbook of Chemisry and Physics*, The Chemical Rubber Co., Cleveland, Ohio, 48th Ed., 1967–68, C–435.

The Possibility of Cultivation of *Solanum khasianum* by Stem Cuttings

In comparison to the propagation by seeds[1-2], the writers found that *S. khasianum* plants can be successfully propagated by stem cuttings with apical bud and leaves remaining intact. If the cuttings are made in the months of July-September, 80 90% success is achieved. The root initiation is found to occur after 10–12 days from the date of cutting. Leaves, branches, vegetative buds, floral buds, fruits and alkaloid contents are found to be greater in plants grown from August-cuttings in comparison to the plants grown from seeds. The greater number of fruits and correspondingly higher

solasodine content occurs possibly due to the repeated early branching in case of plants grown from cuttings.

Department of Botany, Burdwan University, Burdwan, (West Bengal), *June* 21, 1976.
D. P. KUSHARI.
S. K. CHATTERJEE.

1. Maity, P. C., Mukherjee, S., Mathew, R. and Henry, A. N., *Curr. Sci.*, 1964, 33, 730.
2. Sainy, A. D. and Biswas, R. C., *Ind. J. Plant Physiol.*, 1967, 10 (1) 36.

Two New Leaf Spot Diseases of *Crotalaria juncea* L Caused by *Pleospora infectoria* Fuckel and *Phoma glomerata* Corda.

During the survey (September and October 1973) of *Crotalaria juncea* in cultivated field, a number of leaves were found infected with typical spots. Two fungi were isolated from infected leaves using potato dextrose agar (P.D.A.) medium at 30° C. In the case of one, the spots were pale yellow turning black and 7–15 mm in dia. The fungus was identified as *Pleospora infectoria* Fuckel by standard methods. In the case of other, the spots appeared as yellow turning to brown in colour and 3–5 mm in dia. The culture was identified as *Phoma glomerata* Corda.

The spore suspensions of the two fungi in sterile water were sprayed on healthy plants which showed typical symptoms over the leaves after 7 and 10 days, respectively. Reisolations from the leaves of artificially inoculated plants yielded the same pathogens.

The fungus *Pleospora infectoria* and *Phoma glomerata* causing leaf spot diseases of *Crotalaria juncea* are the first records. The cultures were identified from and deposited in CMI, England (IMI 197814 and IMI 197817).

The authors express their grateful thanks to Dr. M. N. Gupta, Dr. K. D. Sharma and Dr. C. P. Agarwal for facilities and suggestions and the Director, CMI, England, for confirming the identity of fungi.

Department of Botany, Agra College, Agra
P. D. PATHAK.
and
School of Studies in Botany, Jiwaji University, Gwalior,
R. K. S. CHAUHAN.
August 7, 1976.

Allamanda cathartica, A New Host of *Colletotrichum gloeosporioides*

A leaf blight disease was observed on *Allamanda cathartica* Linn., a common ornamental plant, in the Allahabad University Campus and in adjacent regions during January 1976. Isolations were made from the surface sterilized diseased spots and the fungus was identified as *Colletotrichum gloeosporioides* Penz., the conidial stage of *Glomerella singulata* (Ston.) Spauld. and Schrenk.

Pathogenicity trials were carried out by spraying the conidial suspension on healthy leaves which developed typical disease symptoms.

The authors are grateful to Dr. S. N. Bhargava for his valuable suggestions and to Prof. D. D. Pant, Head of the Department of Botany, for providing necessary laboratory facilities.

Botany Department, University of Allahabad, Allahabad, *July* 1, 1976.
D. N. SHUKLA.
A. P. SINGH.

'CH-I' A New 'Plant Type' in Castor (*Ricinus communis* L.)

During *Kharif*, 1969, a very dwarf plant was located in Gujarat Castor Hybrid-3 in the crop grown in Haryana Agricultural University, Hissar. This extremely dwarf plant was very impressive by its bushy appearance. This plant was, therefore, selfed. At flowering, it was observed that its spikes had only 10–15% male flowers. The seed setting on selfing was good. The progeny of this selfed plant was grown during *Kharif*, 1970. Some plants were again selected and selfed. In a few seasons, a pure genotype was obtained and tested in yield evaluation trials.

Characteristics

CH-I, the new variety, is extremely dwarf (90–110 cm depending upon the soil and environment), with short internodes, leaves closely placed giving 'rosette' appearance in vegetative stage, bushy appearance becoming apparent in 35 days, foliage dark green and crowdy and profuse branches, the branches bearing 5–8 spikes. The spikes on branches are quite comparable with the spikes on the main shoot. These spikes mature synchronously in 105–115 days. There are 75–100 capsules per spike with about three small seeds per capsule, seeds contain 48% oil.

Results of field trials indicated that CH-I, the new strain, matures earlier as compared to 140–150 days in Aruna (NPH-I) and 270–285 days in PC No. I. It is very dwarf when compared to 340–350 cm height in Aruna and 400–425 cm in PC No. 1. The yield (16 Q/ha) is at par with Aruna (17 Q/ha) and lower than PC No. 1 (20 Q/ha) under irrigated conditions. The oil content is more or less the same in all the varieties.

Due to the early maturity dwarfishness and desirable plant type, CH-I, would fit well in double cropping which was not possible with other varieties in castor. With a maturity of 110–120 days, CH-I can be grown as a pure *Kharif* crop to be followed by any *Rabi* crop.

Department of Plant Breeding, Haryana Agricultural University, Hissar 125 004, India,
January 27, 1976.
T. P. YADAVA.
HARI SINGH.
C. K. YADAV.

Purification of Petunia Mottle Virus

The petunia mottle virus (PMV) is relatively unstable in most of routine purification procedures. The following two methods were found to be satisfactory.

Leaves of young *Petunia hybrida* Vilm. plants, inoculated 10 days earlier with PMV, were freezed and 100 g material was homogenised in 50 ml distilled water containing 0·75 g sodium ascorbate (Gooding[2]). The slurry was squeezed through two layers of cheese cloth, and 6–8% v/v *n*-butanol was added and a low speed of centrifugation was given. The pellet was discarded and supernatant was concentrated by 3 alternate cycles of low and high speed centrifugation by resuspending the pellets obtained at high speed in 0·1 M borate buffer pH, 8·0. The final pellet was dissolved in 2 ml of 0·1 M borate buffer, pH 8·0 and was subjected to sucrose density gradient (Brakke[1]) and an absorbance band was conserved after 4½ hours run at 24,000 rpm.

In the second procedure 100 g of infected petunia leaves were macerated with 150 ml of 0·1 M borate buffer, pH 8·0 (Francki[3]). The sap was squeezed through two layers of cheese cloth and was freezed overnight. After freezing, the sap was thawed and centrifuged using low speed of 10,000 rpm for 10 minutes. Granular ammonium sulphate was added in proportion of 15 g/100 ml extract and was stirred for 6–8 hours in magnetic stirrer and then low speed centrifugation was given. The supernatant fluid was concentrated by two cycles of high and low speed centrifugation. The final pellets obtained were resuspended in 0·1 M buffer, pH 8·0 and the virus solution was subjected to sucrose density gradient centrifugation (Brakke[1]) and an absorbance band was observed after 4½ hours run at 24,000 rpm.

The infectivity of the virus after each step in both the purification procedures was asseyed on *Chenopodium amaranticolor* Coste and Reyn., a local lesion host for PMV. The results are given in Table I,

TABLE I

Infectivity of petunia mottle virus when purified with two different methods (a—sodium ascorbate and butanol method and b—ammonium sulphate method)

Stages of purification	Number of local lesions showing infectivity of different dilutions of PMV				
	Undiluted	10^{-1}	10^{-2}	10^{-3}	10^{-4}
(*a*) *Sodium ascorbate and butanol method*:					
Clarified extract after treatment of butanol	78	54	39	20	0
After I cycle	64	42	24	14	0
After II cycle	66	40	26	12	0
After III cycle	62	34	20	8	0
After density gradient centrifugation	48	22	8	4	0
(*b*) *Ammonium sulphate method*:					
Clarified extract after treatment of ammonium sulphate	82	60	42	18	0
After I cycle	60	48	34	14	0
After II cycle	54	42	28	10	0
After density gradient centrifugation	46	32	20	6	0

Values are average of numbers of lesions per leaf. Three plants having 6 leaves each were used.

Department of Botany, Aligarh Muslim University, Aligarh 202 001, India, *June* 16, 1976.

QAMAR A. NAQVI
K. MAHMOOD.

1. Brakke, M. K., *Adv. Virus Res.*, 1960, **7**, 193.
2. Gooding, G. V., *Phytopathology*, 1963, **53**, 475.
3. Francki, R. I. B., In: *Principles and Techniques in Plant Virology* (Eds. C. I. Kado and H. O. Agrawal), van Nostrand Reinhold Co., 1972, p. 295.

New Record of *Euproctis semisignata* Walker (Lymantriidae: Lepidoptera) as a Serious Pest of Coconut Inflorescence

During the course of a breeding programme for the production of Tall × Dwarf hybrid nuts in the Trichur District, *Euproctis semisignata* Walker was observed for the first time as a serious pest of female flowers and tender buttons aged upto three months. The pest infestation was observed during March-May,

TABLE I

Developmental period (days) of various stages of E. semisignata

Incubation period of eggs*		Larval period**		Pupal period**		Meteorological conditions			
						Temperature °C		RH%	
range	mean	range	mean	range	mean	Min.	Max.	07·25 hrs	14·25 hrs
5–9	6·50	19–35	24·86	7–10	8·10	23·70	35·00	88·23	55·72

* Based on 10 egg masses. ** Based on 15 individuals.

in the coastal regions of Cranganore and in isolated patches around Irinjalakuda. *E. semisignata* was reported to be of common occurrence in India by Lefroy (1909).

The larvae bore into the female flowers and the developing buttons through the stigmatic ends and fed on the nucellar tissue. In open inflorescence the extent of damage was 5–10%. Under bagged conditions the infestation was relatively higher, the range being from 25 to 50%.

The adult moth is dusky yellowish with a median transverse comma-like broad black band across the forewings. Eggs are laid in masses of 15–30 (mean = 22: $n = 10$) on main and subsidiary rachis of the spadix towards the basal regions and covered over with anal hairs. The duration of development of various stages are indicated in Table I.

The total larval period lasts for about 25 days. Pupation takes place on the rachis. The pupa is obtect, characterised by the presence of larval verrucae on the abdominal segments and are enclosed in silken cocoons containing urticating hairs. The pupal period lasts for 7–10 days.

The authors are thankful to Dr. G. S. Arora, Zoologist, Zoological Survey of India, Calcutta-12, for establishing the identity of the pest and to Sri. K. M. Thomas, Assistant Director, Department of Agriculture, Kerala, for the help rendered in making field collections.

College of Horticulture,
Mannuthy 680 651, Trichur,
Kerala, *June* 4, 1976.

C. C. ABRAHAM.
K. S. REMAMONY.

1. Lefroy, H. M., *Indian Insect Life*, 1909, p. 461.

A New Record of *Pythium* from India

During a survey of Saprolegniaceous fungi occurring in certain soils of Gorakhpur, a few members of Pythiaceae (Order: Peronosporales) were also found to be distributed in sandy soils of St. Andrew's College campus having organic content 4·0% and moisture content 7·5%. One species of *Pythium* with conspicuous ornamented oogonial walls was isolated from this locality. Soil sampling was done on the lines suggested by Dick and Newby[1] and unifungal, bacteria-free cultures were raised on sterilized hemp-seed halves at 25–28° C.

The isolate was identified with the help of the monograph by Middleton[2] as *P. echinulatum* Mathews.

The work was supported by a grant from the C.S.I.R., New Delhi. The authors are thankful to Dr. Y. B. Singh, Principal, for providing laboratory facilities and encouragement.

Department of Botany,
St. Andrew's College,
Gorakhpur 273 001,
May 28, 1976.

S. K. PRABHUJI.
G. C. SRIVASTAVA.

1. Dick, M. W. and Newby, H. V., *J. Ecol.*, 1961, 49, 403.
2. Middleton, J. T., "The taxonomy, host range and geographic distribution of the genus *Pythium*," *Mem. Torrey Bot. Club*, 1943.