

SHORT SCIENTIFIC NOTES

Colorimetric Estimation of 2, 4, 5-Triamino-6-Hydroxypyrimidine

2, 4, 5-Triamino-6-hydroxypyrimidine (TAP) is an important intermediate in the synthesis of folic acid. Its purity is usually determined by iodometry¹. We have found that it reacts with ninhydrin to give a purple colour showing an absorption maximum at 555 nm. The colour is stable for 40 minutes and obeys Beer's law in the concentration range of 2.4 to 22 µg/ml of TAP sulphate (TAPS). Optimum conditions for colour development and estimation of TAPS have been worked out and are reported here. The procedure is simple, fast and accurate. Procedure—About 60 mg of TAPS was weighed accurately into a 250 ml calibrated flask and dissolved in 200 ml of warm water. The solution was allowed to cool to room temperature, 20 ml of 10% (v/v) hydrochloric acid was added and the final volume was made up with water. One ml of the solution was placed in a 25 ml volumetric flask and 10 ml of isopropanol and 2 ml of ninhydrin reagent (3% w/v solution in methyl cellosolve) was added. The reactants were mixed well and the resulting coloured solution diluted to mark with isopropanol. Absorbance of the colour was measured at 555 nm against a reagent blank on a Bausch and Lomb Spectronic-20 Spectrophotometer. A standard solution of TAPS, prepared from a sample assaying 100.0% by iodometry exactly in the same manner as described above, was run simultaneously. The absorbance of the standard colour was used to calculate the purity of TAPS sample. It has been observed that solutions of TAPS on storage show slight change in colour and hence it is advisable to prepare standard as and when it is required.

Five batches of TAPS from our plant have been analysed by the proposed method and the results are compared with those obtained by iodometry (Table I).

TABLE I
Analysis of TAPS by iodometry and colorimetry

Sl. No.	% content of TAPS		
	Colorimetry	Iodometry	Deviation
1.	100.5	99.7	+0.8
2.	100.0	100.0	0
3.	100.8	100.3	+0.5
4.	100.3	99.7	+0.6
5.	99.9	99.3	+0.6

The method is being extended to the estimation of folic acid which gives TAP on reductive cleavage by heating with zinc and hydrochloric acid.

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Foot and Mouth Vaccination Stress in Red Dane, Jersey and Murrah Bulls

Increased use of exotic bulls to improve our livestock has lead us to employ recent technological advances for protecting them and their progeny against widely prevalent infectious diseases. Preventive vaccinations against such diseases have been reported to increase spermatozoal abnormalities in breeding bulls (Venkataswami and Rao¹, Narasimhan *et al.*² and Rao³) resulting in testicular damage (Rao and Venkataswami⁴). The results of the present investigation would reveal the effect of foot and mouth disease vaccination on details of sperm abnormalities and preservability of semen in exotic (Red Dane and Jersey) and indigeneous (Murrah) bulls.

2 Red Dane, 3 Jersey and 4 Murrah bulls were vaccinated, each with 40 ml polyvalent foot and mouth vaccine (I.V.R.I., Izatnagar). Their semen ejaculates, each at a week's interval, for 15-21 and 61-75 pre-and post-vaccination days respectively, were evaluated for sperm abnormalities (head, middle piece, tail and total). These semen samples of bull (Red Dane and Jersey) and buffalo bull (Murrah) were also extended in egg yolk citrate and egg yolk glucose bicarbonate dilutors (Saxena⁵) respectively and stored at 3°-5° C. These were evaluated at every 24 hourly interval for 168 hrs for spermatozoal motility (progressive and per cent) *vis-a-vis* its suitability for artificial insemination (A.I.).

The percentage of abnormal spermatozoa increased significantly during 16-30, 0-45 and 0-45 days, post vaccination in Red Dane, Jersey and Murrah bulls respectively. Majority of the abnormalities

were found in the mid piece region (mainly cytoplasmic droplets and coiled/kinked) in all the three species of animals. It indicated that maturation process was somehow adversely affected. The preservability of spermatozoa (number of days semen found suitable for A.I.) was also adversely affected during the post-vaccination period. It indicated close relationship between incidence of sperm abnormalities and semen preservation. Details will be reported later.

We are thankful to Dean, College of Veterinary Medicine and Director, Experiment Station, G. B. Pant University of Agriculture and Technology, Pantnagar, for providing the necessary facilities.

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Hydrocyanic Acid Concentration at Different Ages of High Yielding Varieties of Sorghum

Sorghum grain forms a staple human food while the nutritious green fodder is of great value to animals. The main objection for the extensive use of this fodder is the presence of cyanogenic glucoside which on hydrolysis yields HCN, a toxic principle to the livestock at higher concentrations. The HCN content of sorghum plant as affected by various factors like variety, nitrogenous fertilizer application, age and stage of the crop and irrigation has been well studied¹⁻⁵. The present study was undertaken to find out the amount of HCN during different ages of crop growth.

A field trial, under irrigated conditions, was conducted with three high yielding varieties of sorghum, viz., CSH. 5, CS. 3541 and 699 adopting a uniform fertilizer schedule of 100 N, 80 P₂O₅ and 60 K₂O kg/ha. The samples were collected at 30, 45, 60, 75 and 80th days for analysis. In all the varieties, flowering was observed in 60 days. The HCN content was estimated by colorimetric method⁶ using the standard curve as described by Gilchrist *et al.*³.

HCN content during various age of crop is presented in Table I.

The HCN concentration ranged from 485 to 10 ppm. A gradual reduction in the HCN con-

centration was seen in all the three varieties tried and a substantial reduction was noted after 75 days. Similar observations were also reported elsewhere^{5,7}.

TABLE I
HCN concentration during different ages of crop growth

Age in days	HCN (ppm) on fresh weight basis		
	CSH-5	CS-3541	699
30	465	485	355
45	210	440	245
60	125	135	125
75	30	50	60
80	30	10	30

The HCN concentration after 75 days is well below the toxic limits as suggested by Bolhuis¹ and de Bruijn². They classify those which contain less than 50 mg HCN/kg fresh peeled tuber of cassava as innocuous.

From the present study it can be concluded that the fodder can safely be utilised, when cut after 75 days.

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New Records of a Rare Bonellid *Ikedella misakiensis* (Ikeda)

A bonellid worm, *Ikedella misakiensis* (Ikeda) belongs to phylum Echiuroidea and is of much academic interest as it exhibits sexual dimorphism. The only available information regarding the occurrence and distribution of this species is from

Pirotan Island (Lat 22° 36' 12" N Long. 69° 56' 58" E) in India (Gideon *et al.*¹).

During the course of coral survey in the neighbourhood of the Gulf of Kutch, the author came across several specimens of this species from different localities for the first time (Table I). The

TABLE I
New records of *Ikedella misakiensis* (Ikeda)

Sl. No.	Locality	Specimen observed
1.	Mithapur in Arabian Sea	9
2.	North-eastern side of Paga reef	1
3.	South-western side of Pashu Island	7
4.	North-western side of Baida Island on Bural reef	8
5.	South-western side of Nora Island on Bural reef	1

specimens are deposited in the Museum of Marine Biological Research Station, Port Okha. The present records extend the distributional range of the species to Indian waters.

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Marine Biological Research Station,
Port Okha, December 29, 1975. M. I. PATEL.

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Wet Rot of Brinjals (*Solanum melongena* L.) Caused by *Choanephora cucurbitarum* (Berk & Rev.) Thaxter

During September 1974, a serious fruit rot of *Solanum melongena* L. (Brinjals) was observed in Kankarkhera village of Meerut District. On examination it was found to be affected by *Choanephora cucurbitarum* (Berk and Rev.) Thaxter. This fungus has been reported on the species of *Capsicum*, *Colocasia*, *Cassia*, *Gossypium*, *Hibiscus*, *Cajanus*, *Vigna* (Dastur², Sinha⁵, Chowdhury and Mathur¹, Mitter and Tandon⁴, Misra and Mehra³ and Wilson and Jose⁶), respectively. It has been reported on the decomposing leaves of *Solanum melongena* L. but as far as the authors are aware, wet rot of fruits has not been reported.

The disease appears as water soaked spots on the leaves, flowers and fruits. Ultimately the fruits become soft and pulpy and are found to be covered with white shining cottony growth of the fungus. Careful examination of the specimen reveals the presence of black pin head sized structures. The pathogen was transferred to potato dextrose agar medium (P.D.A.) and yielded both conidial and sporangial stages.

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Department of Botany, Meerut College,
Meerut, September 4, 1975. P. K. DUBLISH
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Record of a New Alternate Host Plant of Rice Leaf Miner, *Cerodontha oryzivora* Spencer.

Cerodontha oryzivora Spencer was observed from 1971 onwards causing damage in early stage of rice crop in Gujarat. The incidence of this pest is observed in nursery and after transplanting upto boot stage as the maggot feeds only on the tender leaves.

It was also noticed that the pest was present on the wheat (*Triticum durum* L.) which followed paddy cultivation during the month of October-November, 1974 indicating the migration of the insect. This area having monocropping pattern of raising only paddy crop in large acreage followed by *rabi* wheat as rotation year after year, may have brought about the host cross over of the pest.

The data collected showed of incidence of leaf damage (10-15%) on the wheat field. The spraying of Methyl demeton 0.03% and Dimethoate 0.08% gave good results.

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Main Rice Research Station, Gujarat Agricultural University,
Nawagam, September 1, 1975. A. H. SHAH.
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