
SHORT SCIENTIFIC NOTES

Thiazine Dyes as Indicators in Titrations with Iodine

Out of the thiazine group of dyes, methylene blue has been used as iodometric indicator in the titration of sodium thiosulphate and arsenic (III)¹. We now report the use of six other thiazine dyes Thionine, Methylene Green, New Methylene Blue, Tolu'dine Blue (Colour Index Nos. 52000, 52020, 52030 and 52040 respectively), Azure A and Azure C as indicators in the iodometric titration of sodium thiosulphate and arsenic(III). The proposed indicators have the following advantages over starch : (1) solubility in water and (2) tolerance to the presence of sodium chloride and alcohol.

Solutions 0.01% of the dyes were prepared in deionized water. Thionine and Azure C used in this investigation were Riedel-Dehaenag Seelza-Hannover and Chroma respectively, while the rest of the dyes used were Gurr's samples. Standard solutions of sodium thiosulphate, arsenic (III) and iodine were prepared as described by Vogel².

Recommended Procedure : An aliquot of sodium thiosulphate or arsenic trioxide was taken in a 250 ml. iodine flask and diluted to 50 ml. 0.3 ml. of the solution of the dye was added (in the case of methylene green, 0.5 ml. of the solution) and the solution was titrated with iodine. The end point was from blue to green, (Purple blue to gray in case of thionine), and very sharp. While titrating arsenic (III) with iodine 0.5-1 gm. of sodium bicarbonate should be added to the titrant system. The reverse titration of iodine with thiosulphate or arsenic (III) can be carried out under the same conditions as the direct titration. The end point in this case was from green to blue (in all cases except in the case of thionine, where it is gray to purple blue). Titrations in dilute solutions (0.01 M) are also possible with a sharp end point with a blank correction of 0.06 ml. of the titrant for 0.3 ml. of the indicator. The indicator action was attributed to the formation of hydroiodide of tetra'odo dye as was suggested by Gautier¹, for methylene blue.

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1. Gautier, J. A., *Ann. Pharm. Franc.*, 1948, 6, 171.
2. Vogel, A. I., *A Text Book of Quantitative Inorganic Analysis*, Third Edition, The English Language Book Society, 1969, p. 349.

A Preliminary Observation on Cannibalistic Habit in Lesser Grain Borer, *Rhizopertha dominica* Fabr. (Coleoptera : Bostrychidae)

Cannibalistic habit in Red Flour Beetle, *Tribolium castaneum* Herbst. has been reported by Lloyed (1957) and egg cannibalism by Sonleither (1961). But nothing is known about this habit in the lesser grain borer, *Rhizopertha dominica* Fabr. The present writers have observed this habit in *R. dominica* Fabr., for the first time.

Adult beetles were observed attacking disabled members in the rearing jars at $27 \pm 1^\circ$ C with 70% R.H. and eating them. However the entire body was not eaten. This habit was more pronounced in mature adults than in newly hatched ones. They aggressively attack the disabled individuals and consume their antennae, pronotal shield and abdomen. It was also observed that when *R. dominica* were reared at high temperatures (32° C with 60-70% R.H.) the cannibalism was much more pronounced even when abundant food was available. Cannibalism is not noticed under sparsely populated conditions. Only under crowded conditions and high temperature, the habit is pronounced. Cannibalism slows down below 25° C even under crowded conditions. This leads us to believe that high temperature could be an influencing factor.

On the other hand, temperature as an influencing factor has not been cited in cannibalism in *Tribolium*. Observations on *Rhizopertha dominica* Fabr. show that high temperature coupled with overcrowding leads to cannibalism.

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1. Lloyed, M., *Ph.D. Thesis*, Univ. Chicago, 1957, 3, 124.
2. Sonleitner, F. J., *Physiol. Zool.*, 1961, 34, 233.

Lolium remotum Schrank var. *aristatum* (Doell) Aschers
(Poaceae)—A New Record for India

While making a study of the genus *Lolium* Linn. occurring in India the author came across some interesting specimens. Collections from Himachal Pradesh and Uttar Pradesh had been annotated as *Lolium tenuicentum* Linn. After a critical examination of the specimens they were identified as *Lolium remotum* Schrank var. *aristatum* (Doell) Aschers. Bor (1960, p. 545), had stated in the foot-note thus: "The variety *aristatum* has not so far been found in India". No other worker had reported it so far from India.

Lolium remotum Schrank var. *aristatum* (Doell) Aschers in Fl. Brand. 1864, 1: 876. Based on *L. Linicolum* var. *aristatum* Doell, 1857. An annual, short grass; lemmas 4.5–5.5 mm long, elliptic to ovate, turgid at maturity, awned, awns up to 1 cm. long. terminal, weak, scabrid.

Flowering and fruiting: April–September.

Distribution: Germany; India: Himachal Pradesh, Uttar Pradesh.

Exsicc.: Himachal Pradesh–Dalhousie, 6000 ft., 17th September, 1874, C.B. Clarke 22611 (CAL; Uttar Pradesh–Dehra Dun Dist., 30th April 1969, H.B. Naithani 6568 (DD).

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A New Leaf Spot of Wheat Caused by *Chaetomium* Sp.

During September, 1974, while making disease observations on Plant Pathological Screening Nursery (PPSN) at Keylong (Lahaul and Spiti Valley of Himachal Pradesh) about 8,000 f. a.s.l., one entry was observed to be severely attacked with leaf spot symptoms. These spots were elliptical, irregular, straw coloured and were more pronounced on matured leaves. Isolations were made from the surface sterilized diseased spots on 2% potato-dextrose-agar (PDA). These isolations yielded a species of *Chaetomium*. The culture was purified by single ascospore isolations and was maintained on PDA. On the basis of cultural characters the

fungus was identified as *Chaetomium dolichotrichum* (Ames, 1945 and 1961).

The pathogenicity tests were conducted on one month old plants of wheat variety Bolley golden X W, 1929, by inoculating with spore and mycelial suspension. Six or seven days after inoculations the disease symptoms appeared as small, irregular, elliptical, light brown coloured spots on the lower leaves of the inoculated plants, the uninoculated plants remained free. Reisolations from these spots yielded the same fungus. The present communication is the first record of *C. dolichotrichum* causing leaf spots disease in wheat.

Its culture has been deposited in the Indian type culture collection, I.A.R.I., New Delhi, under the accession Number 1949.

The authors are thankful to Dr. J. N. Kapur, Mycologist, Indian Agricultural Research Institute, New Delhi, for the identification of the fungus.

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1. Ames, L. M., *Mycologia*, 1945, 37, 145.
2. —, *A Monograph on Chaetomiaceae*, 1961.

ANNOUNCEMENTS

Award of Research Degrees

Tamil Nadu Agricultural University has awarded the Ph.D. degree in Agriculture to Shri R. Palaniappan and Shri A. Dhanapalan Mosi; Shri P. Kandaswamy, Shri Suryanarayana Veera, and Shri G. Arunachalam.

Annamalai University has awarded the Ph.D. degree in Marine Biology to Shri K. V. Venkataramanujam.

Osmania University, Hyderabad, has awarded the Ph.D. Degree in Geology to Shri Karri Sivaji; Ph.D. degree in Zoology to Smt. Suraiya Rasheed; Ph.D. degree in Biochemistry to Shri Raja Mohan K.

Utkal University, Bhubaneswar, has awarded the Ph.D. degree in Mathematics to Shri Jugal Charan Muduli; and Shri Dola Gobinda Sahoo.

Karnatak University, Dharwar, has awarded the Ph.D. degree in Physics to Shri M. B. Shankar; Ph.D. degree in Botany to Shri S. P. Hosmani; Ph.D. degree in Zoology to Shri S. B. Deshpande.

Sri Venkateswara University, Tirupati, has awarded the Ph.D. degree in Physics to Shri B. C. Venkata Reddy, Ph.D. degree in Statistics to Shri V. Lakshminarasimham; Ph.D. degree in Mathematics to Shri D. Bathaiah; Ph.D. degree in Chemistry to Shri C. Devendranath Reddy; Ph.D. degree in Zoology to Shri N. Chandrasekharam Naidu.