2×2 contingency table for χ^2, for each treatment with respect to control in each variety[3]. The values of χ^2 calculated have been put in the form of Table V. The results obtained clearly show that for Arma 157 and BC 223, treatment with Gamma rays and combination treatment give significant results. None of the treatments shows any effect on variety PC 201. Apart from this it can be seen that the results obtained with combination treatment are more significant as compared to either of the other two treatments.

Thus we conclude that combination treatment with 5 Kr Gamma rays and 0·15% EMS has a slight edge over either of the mutagens when applied alone as a tool for stabilizing meiosis in Triticale.

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SHORT SCIENTIFIC NOTES

On the Occurrence of *Nymphula responsalis* Walker as a Pest of *Salvinia* sp. in Kerala State

The caterpillar of a pyralid moth *Nymphula responsalis* Walker is being recorded for the first time as a pest of *Salvinia* sp. (the African payal), a serious water weed of Kerala.

The female moth lays 50–100 eggs singly on the leaves which hatch in 5 or 6 days. The first instar larva mines the tender leaves and moults on the 3rd or 4th day. The second instar caterpillar makes a small flat leaf-case by bringing together bits of leaves. The caterpillars remaining inside the floating cases defoliate the plants and change the cases frequently to suit their size. Defoliation of the plants at the flat phase will impair the floating balance and the attacked plants sink and decay.

The larval period is about 21 days and the full growth larva is about 15 mm long. The final instar spins a silken cocoon inside the leaf case and remain submerged attached to the nodes of the plant on pupation. Pupal period lasts for 5 to 6 days. The adult is a small brown moth with white wavy lines on both the wings. The moths mate within a day of their emergence and start laying eggs on the 3rd night continuing it for 3 days.

The caterpillar is observed to feed on other water weeds like *Pistia stratiotes, Nymphaea* sp., *Azolla* sp. and *Marsilea* sp. besides *Salvinia*.

The author is grateful to the Director, British Museum, London, for identifying the specimen and to Dr. M. R. G. K. Nair, Professor of Entomology, Kerala Agricultural University, for encouragement, critical reading and suggestions.

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August 18, 1975.

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Maize Borer [*Chilo partellus* (Swinhoe)] as Carrier of *Erwinia carotovora* var. *zeae*, the Causal Agent of Bacterial Stalk Rot of Maize

Bacterial stalk rot of maize incited by *Erwinia carotovora* var. *zeae* is a serious disease of maize and causes heavy losses under favourable conditions. In nature the symptoms usually appear at flowering stage and are mostly confined to the basal internodes. However, in some cases the infection is also observed at the upper portion of the stalk usually along with the borer attack. Therefore, experiments were conducted to study the role of maize borer [*Chilo partellus* (Swinhoe)] in transmission of the stalk rot pathogen.

Healthy larvae were fed on 48 hour old bacterial culture growing on nutrient agar in Petri plates while in control the larvae were fed on uninoculated plates of nutrient agar. After 1 hour of feeding, the larvae were transferred into the sheaths of 45 days old healthy maize plants grown in pots.

A single larva was transferred per plant and the sheath containing the larva was tied with the thread to avoid its escape.

The typical symptoms of bacterial stalk rot along with borer damage were observed in 20–25% of the inoculated plants. In 25% of the plants the larvae died inside the sheath without causing any damage while in the remaining inoculated and control plants only borer damage was noticed. The symptoms of the disease in these plants appeared after 7–10 days as compared to 4–6 days in the case of plants directly inoculated with the pure culture of the bacterium and this delay in symptom expression may be due to the low level of inoculum carried by the single larva. Successful transmission of the bacterium was confirmed by isolation of the pathogen from the infected plants. Indication was also obtained that the larvae may carry the bacterium internally; however, it requires further confirmation.

The authors express their gratefulness to Dr. G. S. Sandhu, Entomologist (Research), P.A.U., Ludhiana, for supplying the larvae of maize borer.

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Ludhiana, *January* 8, 1975.

A New Host Record of the Vegetable Mite, *Tetranychus cucurbitae* Rahman and Sapra

The vegetable mite, *Tetranychus cucurbitae* Rahman and Sapra is known to feed on several host plants. Among these, cucurbitaceous plants, tomato, holyhock, groundnut, jasmine and peach are important (Sidhu and Gurdip Singh, 1972). In the months of June and July, 1975, the vegetable mite, *T. cucurbitae* was found infesting the exotic weed, *Parthenium histerophorus* L. (Compositae) on the farm of Agricultural College, Dharwar, Karnataka. This was confirmed by allowing the mites to feed on the parthenium plants in the green house. All the stages of the mite (eggs, nymphs and adults) were noticed. The mites produced characteristic white specks on the leaves due to the feeding activity.

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Dharwar 580 005, *July* 31, 1975. M. R. RANGASWAMY.

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ANNOUNCEMENTS

Award of Research Degrees

Karnatak University, Dharwar, has awarded the Ph.D. degree in Zoology to Shri S. A. Nevagi, Shri Shivappa Sengappa Rodgi, Shri Sharabanna Doddappa Amoji, Shri Y. F. Neelgund, (Miss) Angara Venkata Narasubhai.

Karnatak University, Dharwar, has awarded the Ph.D. degree in Geology to Shri R. S. Hanagodimath, Shri Gothe Narasimha Naryan.

Karnatak University, Dharwar, has awarded the Ph.D. degree in Anthropology to Shri B. G. Halbar, (Mrs.) Prabha V. Mahale.

The M.S. University of Baroda has awarded the Ph.D. degree in Physics to Shri Maulesh Prataprai Maru; Ph.D. degree in Chemistry to Shri Rasiklal Amulakhbhai Vora, Kumari Purnima Chandrakant Parikh, Shri Kanaiyalal Vanmalidas Masrani; Ph.D. degree in Botany to Shri Satishchandra Jagmohandas Chokshi; Ph.D. degree in Biochemistry to Kumari Shailaja Dattatraya Telang; Ph.D. degree in Geology to Shri Ochhavlal Krishnalal Shah; Ph.D. degree in Zoology to Shri Mahmod Ali Khan; Ph.D. degree in Microbiology to Kumari Freny Homi Doctor; and Shri Jitendrakumar Dhirubhai Desai; Ph.D. degree in Pharmacology to Shri V. S. R. Krishnamurty.

Osmania University, Hyderabad, has awarded the Ph.D. degree in Physics to Shri T. Bhima Sankaram; Ph.D. degree in Chemistry to Shri Satyanarayana Reddy Padala; Ph.D. degree in Astronomy to Shri Arun Potdar; Ph.D. degree in Geophysics to Shri I. B. Rama Prasada Rao, Ph.D. degree in Genetics to Kumari A. Padma; Ph.D. degree in Geology to Shri A. Suryaprakash Rao; Ph.D. degree in Zoology to Shri Syed Badrul Hasan and Smt. Ratnamala.

Tamil Nadu Agricultural University, Coimbatore, has awarded the Ph.D. degree in Agriculture to Shri Abi Cheeran, Shri S. R. Subramanian, Shri M. S. Venugopalan, Shri V. T. Sundaramurthy, Shri U. S. Krishnamurti.

Utkal University, Bhubaneswar, awarded the Ph.D. degree in Mathematics to Shri Sarat Kumar Nayak; Shri Jayanarayan Panda; Ph.D. degree in Physics to Shri Lambodar Prasad Singh; Ph.D. degree in Chemistry to Shri Nrusingh Charan Misra, Shri Nimai Charan Naik, Shri Biren Kumar, Shri Dinabandhu Misra; Ph.D. degree in Botany to Shri K. C. Panda, Shri S. B. Singh, Shri R. Stephen Vinaya Rai; Ph.D. degree in Geology to Shri K. N. Sahu; Ph.D. degree in Medicine to Dr. S. M. Haque.