SCIENCE NOTES AND NEWS

Chemical Control of Nut Grass *Cyperus rotundus* L.

Messrs. C. Thakur and H. N. Singh, Central Sugarcane Research Station, Bihar, report that chemical control of nut grass, a pernicious perennial weed, can be obtained by means of the commercial weedicides—fernoxone (containing 80 per cent. sodium salt of 2, 4-D : 0·125 per cent. and 0·25 per cent. concentration), phenoxylene 30 (Pest Control Ltd., Cambridge : 0·33 per cent. and 0·66 per cent concentration), and 2, 4-D (2, 4-Di-chlorophenoxyacetic acid : 0·5 per cent. and 1·0 per cent. concentration—at the rate of 100 gallons per acre. Of these, the former two were found to be more effective than 2, 4-D. Plants in blossoms resisted the effect of chemicals in all cases to a greater extent than non-flowering plants In the lower dosage slight yellowing was noticed in some plants and they recovered very soon to the normal condition. The after-effects of these chemicals will be reported in detail later. Grateful acknowledgement is made to Sri. K. L. Khanna for providing necessary facilities for work.

Equipment for Raman Spectroscopy

Messrs. Hilger & Watts Ltd., London, have designed a spectrograph which facilitates the employment of Raman effect in industry and in research. The equipment consists of : (1) source unit, (2) large aperture, two-prism spectrograph with alternative cameras, (3) direct recording equipment, (4) scanning attachments, (5) vibrator, photomultiplier, amplifier, oscillator and supply unit. The equipment is sensibly linear over the whole of the operating range.

New Derivatives of Cortisone

Both cortisone and hydrocortisone occur naturally in the vertebrate adrenal cortex, and, as is well-known, are being used in treating rheumatoid arthritis, rheumatic fever and many other diseases. By means of the rat liver glycogen test, an assay used in evaluating compounds for cortisone-like activity, Drs. A. Borman and P. M. Singer of the Squibb Laboratories, U.S.A., established that three of the new halo-derivatives prepared by them approach cortisone in activity, while two exceed it.

One of the compounds, 9-α-chloro-17-α-hydroxycorticosterone, was shown to be found four times as active as cortisone. This is significant since in the past authorities in the field have held it unlikely that substances more active than cortisone could be synthesized in the laboratory Meanwhile the new compounds are being tested with laboratory animals and full evaluation must await clinical trials.

Synthesis of Hydrazine by New Method

Hydrazine—the basis of rocket fuels and the new anti-T.B drug *Isoniazid*—has been synthesized by a new process developed in the U.S.A. The starting material is ammonia or urea. Using a high frequency discharge to keep heating effects to a minimum, the method yields 4·6 g of hydrazine per kWh. of energy dissipated in the discharge tube High flow rates through the discharge tube, small discharge currents, low pressures and small electrode gap distances favour yields

Weather in the Upper Atmosphere

A new meteorological station has been established near Crawley, in Sussex, with automatic radar-sonde equipment for observing accurately the weather in the upper atmosphere. The equipment used was evolved directly from the existing radio-sonde system and is designed to meet the greater accuracy demanded of meteorological forecasting.

A radar transmitter-receiver, or transponder, is carried aloft by a free balloon and is interrogated automatically by radar pulses from the ground station. The height at which soundings can be made is limited largely by the bursting point of the balloon The radar-sonde equipment is capable of operating at a ceiling height of at least 100,000′ and wind speed and direction, temperature, pressure and humidity can be measured at ranges of up to 100 nautical miles The balloons are released from the ground station at certain internationally agreed times and signals are received from the transponders by an automatic following aerial at the ground station. The whole process of recording, computing and telemetering is automatic.

New Monochromator

A new monochromator, developed by Fischer Scientific Co., U.S.A., gives high intensity monochromatic light of any desired frequency. The heart of the monochromator is its certified-

precision plane diffraction grating, ruled 600 grooves per mm. The monochromator has an efficiency of 65 per cent. at a wavelength of 265 m/a in the first order. The grating is mounted so that its full first-order spectrum is swept across the exit slit by a screw drive, which is turned by a drum graduated directly in mμ.

Streptohydraid for T. B.

The Tuberculosis Chemotherapy Trials Committee of the British Medical Research Council announced recently that the best treatment now available against T.B. is a combination of the isoniazid (INH), with streptomycin. The dosage is 1 g. of streptomycin and 200 mg. of isoniazid daily.

It is now possible to give both these drugs—in almost exactly these proportions—in a single injection, for they have been chemically combined into one substance. This combination, called streptohydrazid, also helps to avoid the unpleasant stomach upsets and other side-effects which sometimes occur when isoniazid is given by mouth.

Symposium on Milk and Milk Products

It is proposed to hold a symposium on recent progress in biochemical research on milk and milk products, under the joint auspices of the Society of Biological Chemists, India, and the Indian Dairy Science Association, during the Easter recess of 1954. Those intending to take part in the symposium may please contact the Hon. Secretary, Society of Biological Chemists, India, Indian Institute of Science, Bangalore 3, or the Joint Secretary, Indian Dairy Science Association, Indian Dairy Research Institute, Bangalore.

Ophthalmology Institute

The Government of India have sanctioned Rs. 1,30,000 for construction of an Institute of Ophthalmology for post-graduate studies and a recurring grant of Rs. 20,000 for its maintenance in Aligarh. The Institute will be attached to the Gandhi Eye Hospital and will operate in collaboration with the Aligarh University.

Pharmaceutical Committee

A Committee has been appointed by the Government of India to undertake a comprehensive enquiry into the pharmaceutical industry. Among other things, the Committee is to study the operations of foreign concerns and Indian concerns with foreign associations. A questionnaire has been circulated to the industry calling for details about price structure and imports of raw and semi-processed materials.

Research Degree Awards

The Andhra University has awarded the Degree of Doctor of Science in Biochemistry (Medical), to Mr. B. Naganna for his thesis entitled "Pyro-Phosphates".

The University of Madras has awarded the Ph.D. Degree in Physics to Mr. Gopinath Kartha for his thesis entitled 'Studies on X-Ray Crystal Structure Analysis'.

Rajasthan Academy of Sciences, Pilani

Office-bearers for 1953-54: *President*: Dr. P. Nilakantan, *Vice-Presidents*: Dr. K. M. Gupta, Dr A. K. Chatterji, Prof. M. L. Schroff, Dr. M. L. Roonwal, Dr. G. S. Mahajani; *Secretary*: Prof. K. Ramamurti; *Treasurer*: Prof. Roshan Singh.

Standards of Isotopes

For some time past, the need has been felt for absolute standards for radioactive isotopes. As the National Physical Laboratory, England, has at present the main responsibility for standards of certain radioactive isotopes in Great Britain, it is proposing to issue standards of these isotopes at regular intervals to meet the needs of those whose use of such materials justifies absolute standards and to supplement the normal calibrations which can be obtained on request from the Atomic Energy Research Establishment, Harwell. Standards of iodine-131, based on the British Standard for this isotope, will be issued on or about October 15, 1953. Future issues will take place twice yearly in mid-April and mid-October. The iodine-131 standards will be in the form of sealed ampoules of solution Two different levels of activity will be available, one of 1 millicurie in 1 ml. of solution and one of 100 microcuries in 4 ml. of solution. Issues of standards of phosphorus-32 (100 microcuries in 4 ml. of solution) are planned to take place on June 15 and December 1, 1953. Applications for these standards should reach the National Physical Laboratory not later than a fortnight before the appropriate date of issue, and should include a statement of the purposes for which the standards are required. A fee of £ 10 will be charged for each 1 millicurie standard and of £ 5 for each 100 microcuries standard. It is requested that applicants should make their own arrangements for the collection of their standards from the laboratory. An announcement relating to the issue of cobalt-60 standards will be made in the near future.

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