of them developed even minor symptoms. Similar treatments with 2,000 and 4,000 ppm suspensions only 5 days after inoculation were also highly effective. Only one out of 16 plants in each of the two treatments showed signs of infection, but the wilt symptoms did not progress much beyond the lower leaves and both the plants recovered. Even the late treatment with 4,000 ppm Bavistin, given 22 days after inoculation, gave significantly effective control. Only 4 out of 17 plants developed symptoms within 3 weeks and one more became affected in the succeeding weeks. Of the affected plants, only 2 died and the rest recovered. The results were confirmed by repeating the experiment.

In the second experiment, a few additional treatments were included. The fungicide was also applied as soil drench at 2,000 ppm, 10 days before inoculation, and as foliar spray at 2,000 and 10,000 ppm, only 2 days after inoculation. About 20 ml of suspension was used as spray to give good coverage to both the leaf surfaces of all the plants in a pot. Obviously, a small portion of it dripped from the leaves into the top soil. Symptom appearance was slow in this experiment. Only 20% of the plants in the inoculated control series developed symptoms within 5 weeks. In the course of the next 6 weeks, a total of 60% of the plants became affected and the mean disease index changed from 0·8 to 2·0. Pre-inoculation drench treatment with 2,000 ppm suspension gave the plants total protection against the disease. When used as foliar spray, the fungicide gave total protection at 10,000 ppm. At 2,000 ppm, however, a small proportion (17%) of plants developed symptoms by the end of fifth week and the percentage of affected plants increased to 34% in course of the next 6 weeks. Only one of them recovered; all others died.

Bavistin was also tested for its toxicity against the pathogen, using poisoned food technique, at 1,000, 100, 10 and 1 ppm in PDA medium. There were four replicates for each treatment. Radial growth was recorded after 5 and 7 days' incubation at 28° C. Bavistin inhibited growth totally at 1,000 and 100 ppm and significantly even at 10 ppm. At 1 ppm, the fungicide had no effect.

Observations clearly indicate that Bavistin holds great promise as a fungicide in the control of pigeon pea wilt. If adequately absorbed by the plant, Bavistin may not only prevent infection from taking place but may also cure the established infection, if it has not already progressed much.

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A NEW RECORD OF PARASITIC DODDER ON CHICKPEA (*CICER ARIETINUM* L.)

A FIELD of chickpea near village Mana, Raipur (India) was severely attacked by dodder (*Cuscuta* sp.), a phanerogamic plant parasite (Fig. 1). The chickpea plants were badly entwined with slender vines of cuscuta and the parasitized plants dried prematurely and produced a few small shrivelled seeds. Transverse sections of the host stems showed the presence of haustoria of the parasite.

FIG. 1. Dodder (*Cuscuta hyalina* Roth.) on chickpea.

The parasite was leafless, filiform, and its vines were more slender than *Cuscuta reflexa* Roxb. which formed dense yellow masses on the host plants. Flowers were pale yellow, bracteate, tetra- or pentamerous and found in clusters. Corolla scales were absent. Stamens exserted between the corolla lobes; styles 2, unequal, filiform; stigmas capitate; seeds four, brownish, triangular, The parasite has been tentatively identified as *Cuscuta hyalina* Roth. based on the description given by Hooker (1885). This is first record of this dodder parasitising chickpea plants in nature in India.

The specimens have been deposited in the Herbarium of the Department of Plant Pathology, J.N. Agricultural University, Jabalpur 482 004, India.

Department of Plant Pathology, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur 482 004, May 19, 1975.
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RADIATION DAMAGE OF P-32 AND ADENOPITUITARY

IONIZING radiations influence the anterior pituitary in 2 different ways: (*i*) direct effect and (*ii*) indirect effect through hypothalamus, thyroid, adrenal, and gonads. A combination of both these effects will be revealed after a certain time of irradiation.

The histopathological slides of the pituitary gland prepared from P-32 injected mice always show the ventral margin of the adenopituitary containing a greater number of dead cells, pyknotic nuclei with shrunken cytoplasm, etc. The ventral margin of the adenopituitary consists more of basophils as compared to the acidophils than the rest of the pituitary[1]. Our impression is that the basophils are comparatively less susceptible to radiation than the acidophil cells[2]. These observations were made on Swiss albino mice during development stages of the pituitary. P-32 was injected to young animals at the rate of 1·0 μ Ci/g body weight at various intervals after parturition and sacrificed regularly at weekly intervals.

It appears that the damage done to the pituitary by the above dose of radiophosphorus by direct and indirect ways only, cannot account for its chosen ventral margin lesions but also for the direct hitting of the ventral margin cells by radiophosphorus which are accumulated in the surrounding floor bones of the cranium, particularly the sella, which remains in close contact with the adenopituitary. In general, bones show the greatest avidity for this metabolite. P-32 has a maximum energy of 1·69 Mev. and a maximum range of 7 mm in the soft tissue. To confirm this, adult mice were injected with P-32 at the dose rate of 2, 3, and 5 μ Ci/g body weight. The results were in conformity with the observations made on the young animals, *i.e.*, a greater number of cell death towards the ventral margin of the adenopituitary than the rest of it.

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P. K. DEV.

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GYNANDROMORPHS OF *CULEX FATIGANS*—THE FILARIAL MOSQUITO

GYNANDROMORPHS have been found in fair numbers in the laboratory strains of Culicine mosquitoes. More than half the known mosquito gynandromorphs have occurred in the genus *Culex*. Both *Culex pipiens* (Laven, 1967)[1] and *Aedes aegypti* (Craig and Hickey, 1967)[2] have been specially known for the large number of naturally occurring gynandromorphs. Kitzmiller (1953)[3] listed five *Culex* species with reported gynandromorphs. Subsequent references to gynandromorphs include those of Brust (1966)[4] and Lee (1967)[5]. Since then two more species have been added to the list: *Culex tritaeniorhynchus* (Aslamkhan and Baker, 1969)[6] and *Culex fuscocephalus* (Aslamkhan, 1970)[7].

The gynandromorphs reported here were discovered in inbred strains of *Culex fatigans* during a screening programme for mutant genes. The gynandromorphs were of three broad types:

(*a*) *Anterior-posterior gynander* (*Fig. 1*).—In this case, the anterior region was phenotypically male; head with antennae and palpi typical of a male. The posterior region was typically female; with wings of the female type and abdomen with well developed ovaries. Fore and mid pairs of appendages were typically like those of a female.

(*b*) *Anterior-posterior gynander* (*Fig. 2*).—In this case, the anterior region was phenotypically female and the posterior region male. The mouth parts were typically like those of a female; the abdomen, hypopygium and the wings resembled those of a male. However, the appendages exhibited bilateral characters. The fore and mid appendages of the right side were female-like and the corresponding ones of the left side were male-like. Testes were well developed.

(*c*) *Bilateral-gynander* (*Fig. 3*).—The right side of the body resembled a male and the left side a female. The antenna, appendages 1 and 2, abdomen and hypopygium, all of the right side resembled those of a typical male. The palp of the right side was abnormal, being intermediate between that of a male and a female. The antenna, palp, appendages 1 and 2 and abdomen, all of the