

At the same dosage both produced sterility by interference with the spermatozoa, spermatids and spermatocytes. On the other hand, at 1% concentration in the diet, compound I completely inhibited egg-hatch in the housefly while compound II was only slightly effective<sup>3</sup>. Compound I also inhibited egg production in the Japanese quail<sup>8</sup> at 250 ppm in the diet and had a therapeutic index of 15 against Ehrlich ascites carcinoma in mice<sup>5</sup>. The other 2 compounds tested, III and IV, differed in the degree of unsaturation in the carbon ring. Compound III inhibited reproduction during nearly the whole spermatogenic cycle (~42 days) and also spermatogonial proliferation at 5 daily doses of 20 mg/kg while at 10 mg/kg, the spermatogenic cycle was partly affected. Compound IV caused subfertility at 5 mg/kg and was toxic to mice at 10 mg/kg in the drug treatment schedule. Against houseflies compound IV was a more effective chemosterilant (0.1% in diet) than III<sup>4</sup> while the latter was much more potent in its antifertility activity against mice at a higher but non-lethal dosage. The acute LD<sub>50</sub> values to male mice of I and III were 1070 mg/kg and 71 mg/kg orally respectively, and 88 mg/kg and 45 mg/kg i.p. respectively<sup>8</sup>. Apholate was an effective chemosterilant against houseflies and was either lethal to mice at 20 mg/kg or practically non-effective at lower dosages. Thus, variations in the carrier-moiety, whether drastic or slight, could result in subtle differences in biological activity and more studies are needed to clarify structure-activity relationships.

Recent interest in non-steroidal antifertility agents and the contemplated use of some of them as rodent control

agents reflect a more sophisticated rationale for pest control<sup>11</sup>. Presently under laboratory investigations toward such an end are many classes of compounds, including alkylating agents. Compared to other alkylating agents, compounds I, II and III possessed antispermato-genic activity similar to *N*-carbamoylaziridine, ethylene-1,2-dimethanesulfonate (EDS) and *iso*-propylmethanesulfonate but were more effective than, for example, Myleran<sup>10</sup>. Compounds I, II and III or their derivatives may have promise as antifertility agents for mammals and especially as rodent control agents<sup>12</sup>.

*Zusammenfassung.* Nachweis, dass einige alkylierende Substanzen, die von verschiedenen Diaminen erhalten wurden, die Spermatogenese männlicher Swiss-Webster-Mäuse hemmen. Eine davon verursachte achtwöchige Sterilität und scheint zur Kontrolle von Nagetieren besonders geeignet.

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<sup>11</sup> World Health Organization. WHO/Vector Control, 217 (1966).

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## Toxicity of Psychotropic Drugs in *Drosophila melanogaster*

We wish to report on the toxicity of the psychotropic drugs, chlorpromazine and tranlycypromine, to growth and development of the common fruit fly, *Drosophila melanogaster*. The flies were reared, mated and housed on standard cornmeal medium<sup>1,2</sup> in a walk-in, constant temperature room (24°C). Sterilized eggs were incubated in media which contained 0.001, 0.01 or 0.1% of either chlorpromazine or tranlycypromine. As the animals eclosed they were counted and sexed. Observations were made on the mating behavior of 10 pairs of flies using both normal and drug treated males and females. Adults employed for mating observations were aged 4 days to assure sexual maturity.

The ratio of males to females obtained from untreated flies was 1.11 with a standard deviation of 0.06 as determined from 4 experiments. The ratio of males to females in the treated group at the 0.1% level were as follows: chlorpromazine, 0:82; tranlycypromine, 0:76. Tranlycypromine had no effect on the rate of eclosion or number of viable flies obtained. However, inclusion of 0.01 or 0.1% of chlorpromazine in the medium delayed eclosion and reduced the number of viable flies obtained. At the 0.1% level the flies began eclosing 3 days later than untreated flies and the yield of flies was only 52% of the untreated control.

During mating of individual virgin flies it was noted whether or not the males performed the following portions of the mating ritual: vibrating, circling, licking, probing

and mounting<sup>3</sup>. The drug treated flies exhibited more instances of activity than untreated flies except in the performance of wing vibration. The only exception was when chlorpromazine treated males were mated with chlorpromazine treated females in which case a decrease in probing activity was observed.

All drug treated flies were able to produce normal F<sub>2</sub> generation flies.

*Zusammenfassung.* Toxische Wirkungen von Chlorpromazin und von Tranlycypromin auf *Drosophila melanogaster* werden beschrieben.

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<sup>1</sup> W. P. SPENCER, in *Biology of Drosophila* (John Wiley & Sons, Inc., New York 1950), p. 535.

<sup>2</sup> M. M. GREEN, *Drosoph. Inf. Serv.* 25, 135 (1951).

<sup>3</sup> M. BASTOCK and A. MANNING, *Behaviour* 10, 85 (1955).