

The I^{131} content of the thyroid gland was significantly higher in the danazol treated groups than in the controls. This was interpreted as being the result of a decrease in the rate of discharge of thyroid hormone, which further supports the supposition of the inhibition of thyroid function after danazol administration. In addition a direct effect on the trapping and binding of iodine by the thyroid gland is reflected in a decreased $Pb\ I^{131}$ conversion rate. The evidence is quite conclusive that danazol acts on thyroid gland function directly as well as by influencing pituitary thyrotrophic activity in enhancing I^{131} uptake.

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NITRATE REDUCTASE IN WILD AND CULTIVATED WHEATS

RECENT studies on photosynthetic rates in wild and cultivated wheats have shown that the primitive wheats have higher photosynthetic rate than the cultivated types^{1,2}. This behaviour was found to be true during vegetative phase even at the photo-phosphorylation level³. Tsunoda⁴ has further shown that the photosynthetic rates are strongly correlated with leaf nitrogen. Croy and Hageman⁵ have shown a strong correlation between the activity of nitrate reductase and total reduced nitrogen in wheat. Would then, selection for nitrate reductase help in selecting for high photosynthesis also? We here report the activity of nitrate reductase in diploid, tetraploid and hexaploid wheats grown under identical conditions. Twenty-eight genotypes, belonging to ten different species and including all the basic genomes of wheat, were raised in sand culture. Hoagland's nutrient solution at full strength was supplied at weekly interval⁶. Fully expanded leaves of one-month old seedlings

were assayed for nitrate reductase using the *in vivo* method^{7,8}. There were three replicates for each genotype and for each determination 200 mg leaf material obtained from several leaves was used. In a preliminary experiment the effect of glucose, sucrose and 3-phosphoglyceric acid was determined on the *in vivo* activity of nitrate reductase. Only 1% glucose was found effective in raising the NR activity. Therefore, NR activity in all genotypes was determined in the presence of glucose.

TABLE I

Nitrate reductase activity *in vivo* in leaves in different genotypes of one-month old wheat seedlings

Species	Genome	Culture		$\mu\text{moles NO}_2^-/\text{g.f.w./h}$
		Code Name		
<i>T. monococcum</i>	AA	..		4.92
<i>T. speltoides</i>	BB	..		4.33
<i>T. tauschii</i>	DD	..		5.64
<i>T. carthlicum</i>	AABB	Parent II		2.92
		5		2.80
<i>T. dicoccum</i>	AABB	39854		2.92
		NP 202		1.92
<i>T. durum</i>	AABB	Parent VIII		
		HD 4502		2.75
		NP 404		3.17
		Parent III		2.33
		Parent X		2.17
		18		2.75
		23		2.83
		24		2.50
		28		2.67
		43		2.67
<i>T. aestivum</i>	AABBDD	44		2.00
		50		2.33
		67		2.17
		68		2.25
		46432		2.92
		Lusitanium		2.08
		Parent V		
		Hira		2.25
		Kalyansona		2.17
		C-306		2.33
Moti		2.58		
Karchia		2.33		
LSD at 5%		0.41		

The highest enzyme activity was observed in three diploids *Triticum monococcum*, *T. speltoides* and *T. tauschii*. Amongst the 4x types the lowest activity of 1.92 $\mu\text{moles NO}_2^- \text{g}^{-1} \text{hr}^{-1}$ was observed in *T. dicoccum* cv. NP 202, whereas the maximum was in *T. durum* cv NP 404 being 3.17 μmoles

$\text{NO}_2^- \text{ g}^{-1} \text{ hr}^{-1}$. Within one species such as *T. turoidum*, the variation was from 2.00 to 2.92 $\mu\text{moles NO}_2^- \text{ g}^{-1} \text{ hr}^{-1}$. In *T. aestivum*, the enzyme activity just varied from 2.17 to 2.58 $\mu\text{moles NO}_2^- \text{ g}^{-1} \text{ hr}^{-1}$.

Therefore, it appears that only the 2 × genotypes have higher NR activity than 4 × and 6 × genotypes. There does not exist any clear distinction between 4 × and 6 × types in this regard although they differ with respect to photosynthesis¹. This study shows that close relationship between total nitrogen and photosynthesis may not have much to do with nitrate reductase activity. Accordingly, the NR activity cannot be made an indirect index of photosynthetic activity also.

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SEX-RATIO OF *ORYZAEPHILUS MERCATOR*, FAUVEL ON DIFFERENT FEEDS

THE biology of *Oryzaephilus mercator* has been investigated by Howe⁴ on wheat, coconut and grass meal; by Fraenkel and Blewett³ on fig and pea; by Breese² on wheat, unrefined and crystal sugar; by Thomas and Shepard⁶ on walnut, oat and raisin, and by Back and Cotton¹ on split maize. The present author studied the life-history of *O. mercator* on different varieties of paddy, wheat and dry fruits. The results reveal that the life span of the weevil varies considerably on different feeds under similar conditions of temperature and humidity. The amount of consumption by *O. mercator* varies vastly on different feeds. As such it is expected that the sex-ratio of the insect might show variation on different feeds. The present investigation was undertaken to look into it experimentally.

To obtain the eggs of *O. mercator* a culture was raised on Haydak⁵ formula. The meals under test included the dry fruits—groundnut, cashew, dates, raisin, coconut, almond, peanut and figs. The cereals selected for the experiments were gram, maize Ganga hybrid—I, wheat (Rs. 31-1) and rice (IR-8). The wheat and rice varieties selected were the most resistant varieties to the beetle. The cereals were powdered in a hammer mill and sieved through 60 meshes to an inch. The flour was conditioned at 30° C and 70% RH. for 10 days and resieved before use. The dry fruits were sliced to render them easily acceptable by the newly hatched larvae. A suitable quantity of each feed was placed in a glass vial of 3 × 1 cm size. In each batch 90 eggs were taken. Three replications for each experiment were managed. Forty newly-emerged adults were randomly selected and sexed. On the feeds where the number of adults emerged was less than 40, all the adults were sexed.

On rice (IR-8 var.) the total number of males and females emerged was 50 and 70 respectively; whereas on wheat (Rs. 31-1) it was 52 and 68 respectively. On maize and gram meals, the number of males appeared was 57 and 68 respectively, and that of females 63 and 52 respectively. Table I gives the individuals accounted on different meals.

TABLE I

Sex-ratio of *O. mercator* on various feeds

S. No.	Feeds	No. of insects per batch	Tests			Ratio
			I ♂/♀	II ♂/♀	III ♂/♀	
1	Rice (IR-8)	40	18/22	15/25	17/23	1.40
2	Wheat (Rs. 31-1)	40	20/20	17/23	15/25	1.30
3	Maize (G.Hy. 3)	40	19/21	18/22	20/20	1.10
4	Gram	40	21/19	23/17	24/16	0.76
5	Groundnut	40	16/24	17/23	15/25	1.50
6	Cashew	40	11/29	11/29	13/27	2.42
7	Dates	..	5/3	2/2	3/3	0.69
8	Raisin	..	4/2	2/1	3/3	0.66
9	Coconut	40	22/18	20/20	18/22	1.00
10	Almond	40	21/19	23/17	22/18	0.81
11	Peanut	40	15/25	18/22	16/24	1.44
12	Fig	..	15/11	9/8	12/11	0.83

The sex-ratio—female to male—on rice, maize, wheat and gram is 1.40, 1.10, 1.30 and 0.76 respectively. In other words, the number of females emerged on rice was the highest, and on gram the lowest amongst the cereals. On the contrary, the appearance of males was maximum on gram and minimum on rice.

On dry fruits, the number of females collected from groundnut, cashew, dates, raisin, coconut,