
It has been previously shown (Kaji, 1960) that the acid amides are effective in increasing the facet number of B eye. However, such experiments have not been carried out under completely defined conditions and it is possible that high concentrations of acid amides primarily alter the metabolism of the yeast populations and it is this change that in turn influences the expression of the B phenotype. Certainly, the expression of ey (Sang and Burnet, 1963) and ant (Gordon and Sang, 1941) are extremely sensitive to variations in culture conditions. To clarify this point, the effect of acetamide and lactamide supplemented to normal yeasted culture and to a sterile synthetic medium was examined. In the latter case, germ-free larvae were used to completely eliminate the microflora normally present in Drosophila cultures. Mean eye size is taken as a measure of gene expression. No significant changes in body size were recorded throughout this series of experiments.

In Fig. 1, the results of increasing concentrations of acetamide supplemented to yeasted culture and axenic synthetic culture are presented. In both cases, a marked increase in mean eye size is obtained, although equivalent concentrations are more effective in synthetic media than in yeasted culture. A concentration in excess of 0.5% proved toxic in synthetic culture. Increasing concentrations of lactamide also produce an increase in eye size (Fig. 2) in both types of culture media and, in this case, equivalent concentrations are equally effective. A concentration of lactamide in excess of 1.0% is toxic in synthetic culture.

From these results, it is possible to conclude that high concentrations of acid amides directly affect the expression of the B phenotype, presumably by interacting with a biosynthetic process important for eye development. However, the presence of yeast populations in the supplemented cultures does considerably reduce the toxicity of these compounds.


Grossfield, J. Purdue University, Lafayette, Indiana. Crossing over between white alleles of D. auraria.

D. melanogaster. The F1-heterozygous female is phenotypically wsaf and progeny of this type of female and w males revealed 2 wild type males among 3002 F2 individuals scored. The indicated recombination distance of .01 is tentative since no outside markers were available to verify the crossover origin of the wild-type males.