dicate clearly that the addition of sulfate is not very effective as a means of reducing radiostrontium pickup by crops grown on contaminated soils. Although the addition of soluble strontium does seem to have some effect, the principal reduction observed was that effected by the addition of potassium; for potassium, in amounts as low as about 60 lb per 2 million lb of soil (or about 30 lb per acre for normal 2-in. depth of penetration of water-soluble fallout), something like a 40-percent reduction of radiostrontium uptake was observed.

Although these experiments show that radish plants in certain kinds of soil certainly can utilize the strontium in strontium sulfate, and that the formation of radiostrontium sulfate does not necessarily reduce the uptake of radiostrontium, the positive effect of potassium is established. It is possible that other fertilizers or other additives may have a more marked effect than either the fertilizer or the Vermiculite used in this investigation.

The effects observed by Russell, Alexander, and Reitemeier may involve effects other than those tested here. Certainly one knows that, as strontium lies in the soil, it is very likely eventually to be incorporated into large crystals, in which form it will become physically unavailable to the plants. And so the possibility of chemical aging, taking place slowly over several years, exists. It does not seem likely, however, that this process will be of sufficient magnitude to restore heavily contaminated soil to a useful condition, and further work needs to be done on methods of quick beneficiation.

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Purine Catabolism in Drosophila melanogaster

Recently, it has been demonstrated that an eye color mutant, *rosy*^{2} (*ry*^{2}), does not contain isoxanthopterin which occurs widely in *Drosophila* (*1*). It has been reported that 2-amino-4-hydroxypteridine (AHP) is oxidized to isoxanthopterin by an enzyme prepared from *Drosophila* (*2, 3*) and named pterine dehydrogenase (*3*); xanthine is also converted into uric acid by the same enzyme (*2*), and xanthine oxidase is also capable of oxidizing AHP to isoxanthopterin (*4*).

I have found that the mutant *ry* does not contain a trace of uric acid at any developmental stage. Therefore, purine compounds and the activity of xanthine oxidase both in a wild type (Oregon-R) and in the mutant *ry* of *D. melanogaster* were investigated. Purine compounds were detected by paper chromatography. The results are shown in Table 1.

It was discovered that *ry* does not contain isoxanthopterin at any developmental stage, but rather contains a larger amount of AHP than does the wild strain at the pupal stage. It is well known that, as a rule, uric acid is a final product of purine catabolism in insects. On the other hand, mutant *ry* accumulates a larger amount of hypoxanthine, instead of uric acid. The occurrence of hypoxanthine was identified by the absorption spectrum of material isolated from *ry*, and xanthine in pupae and adults of *ry* was also demonstrated by paper chromatography.

The uric acid content of *D. melanogaster* was determined by the reduction of optical density at 295 mμ (*4*). The wild strain has the enzyme, but the *ry* strain does not. Furthermore, it seems that the enzyme is a true dehydrogenase, because it requires methylene blue or diphosphopyridine nucleotide (DPN) as an electron acceptor.

In some double mutants homozygous for *ry*, such as *v : ry*, *cn : ry*, *bw : ry*, and *se : ry*, neither isoxanthopterin nor uric acid is found to any extent in any developmental stage. Among them, *v : ry* and *cn : ry* have a light pinkish-red eye pigment, but *bw : ry* is similar in phenotype to *bw*, and *se : ry* is similar to *se* phenotypically. However, these strains have the same amount of hypoxanthine in each pupal stage as does the *ry* strain.

From these results, it seems that in *Drosophila* uric acid is produced from xanthine and hypoxanthine along the general pathway (*5*) shown in the following scheme.

Hypoxanthine → xanthine → uric acid

The deficiency of both isoxanthopterin and uric acid in *ry* strains may be due to the lack of xanthine oxidase. There is still a problem whether or not xanthine oxidase and pterine dehydrogenase are the same enzyme, and further researches are being carried out along this line (*6*).

Table 1. Pteridines and purines occurring in strains Oregon-R and *ry* of *D. melanogaster*.

Substance	Larvae	Pupae	Adults
Strain Oregon-R			
AHP	±	+	±
Isoxanthopterin	±	++	+
Hypoxanthine and xanthine	±	±	±
Uric acid	±	+	+
Strain ry			
AHP	±	++	+
Isoxanthopterin	−	−	−
Hypoxanthine and xanthine	±	++	+
Uric acid	−	−	−

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Cobalt Activation of Fatty-Acid Synthesis in Yeast Homogenates

Abstract. The incorporation of acetate into lipids in homogenates of *Saccharomyces cerevisiae* was inhibited at low concentrations of ethylenediaminetetraacetate, under both aerobic and anaerobic conditions. Of various cations tested, none could effectively reverse this inhibition. However, Co^{++} completely restored the synthesis of fatty acids, but not of nonsaponifiable lipids.

Previous reports from this laboratory have dealt with the synthesis of lipids in yeast cells (*1*) and in extracts prepared from yeasts (*2*). It has been shown that cell-free preparations incorporate acetate into various cellular lipids and that a particulate fraction consisting of uniform particles, of the order of 30 mμ in diameter, plus the soluble supernatant is required for this activity (*2*).

During the course of the studies de-