

*lycopersici* is of importance to an understanding of the dissimilation of carbohydrates by the heterofermentative lactic acid bacteria.

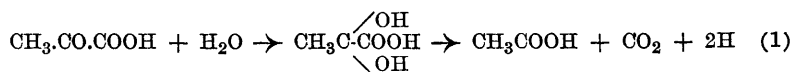
A medium containing pyruvic acid, peptone, yeast extract and  $K_2HPO_4$  adjusted to pH 6.2 was fermented anaerobically at 30°C. by *L. lycopersici*. Formation of the 3 final products in equimolar quantities (Table I) indicates a dissimilation involving oxidation of

TABLE I.  
Dissimilation of Pyruvic Acid by *Lactobacillus lycopersici*.\*

	Exp. 1	Exp. 2
	mm. per liter	mm. per liter
Pyruvic acid, fermented	70.5	46.7
Lactic acid	37.7	22.8
Acetic acid	35.1	22.6
CO <sub>2</sub>	38.8	23.8

\*Millimols per liter.

one molecule of pyruvic acid and the simultaneous reduction of a second. Decarboxylation of pyruvic acid does not appear to occur since fixation of acetaldehyde by dimeson or bisulphite was repeatedly unsuccessful. The close relationship of the lactic bacteria to the propionic bacteria and the failure of van Niel<sup>1</sup> and Wood and Werkman<sup>2</sup> to detect acetaldehyde in fermentations by the latter suggests application of the proposal of these investigators to the lactic acid bacteria, *i. e.*, breakdown of pyruvic acid according to equation (1). The active hydrogen serves to reduce a second molecule to lactic acid.



## 8204 P

### Effect of a Deficient Diet, Amytal and Amidopyrine on Blood Picture of the Albino Rat.

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Madison and Squier<sup>1</sup> in a discussion of the etiology of primary granulocytopenia report that in their series of 14 patients the onset

<sup>1</sup> van Niel, C. B., *The Propionic Acid Bacteria*, Thesis, Delft, 1928.

<sup>2</sup> Wood, H. G. and Werkman, C. H., *Biochem. J.*, 1934, **28**, 745.

<sup>1</sup> Madison, F. W., Squier, T. L., *J. Am. Med. Assn.*, 1934, **102**, 755.

was preceded in every case by the taking of amidopyrine combined with a barbiturate. Also they report the absence of granulocytes in a rabbit given these drugs. In light of this report it seemed worth while to test the action of amytal and amidopyrine on the blood picture of rats weakened by a deficient diet.

Rats of the Ames-Wistar strain, about 60 days in age, were used. The percentage composition of the diet was: Commercial casein 18; corn starch 54; butter fat 18; lard 6; and Osborne and Mendel salt mixture 4. Sodium amytal and amidopyrine 0.75 gr. each (initial dosage which is just sublethal) were freshly dissolved in water and administered daily to each rat by stomach tube, the animals being anesthetized with ether. Untreated litter mates were fed the standard laboratory ration. Total white counts and Hb determinations were made every 10 days, using U. S. Bureau of Standards pipettes and counting chambers and the Bausch and Lomb colorimeter. Differential counts, necropsies, and bone marrow examinations were made on all animals.

TABLE I.  
Blood Findings.

Exp.	No. of animals		Duration of treatment days	—Initial—		Treated animals—Final		Untreated animals—Final	
	Treated	Un-treated		W.B.C.	Hb	W.B.C.	Hb	W.B.C.	Hb
I	6	1	20	15,400	13.5	7,000	13.0	16,600	14.0
II	3	2	65	10,500	13.0	3,700	13.0	11,100	14.5
III	5	3	32	11,100	13.5	7,100	16.0	13,100	14.3
IV	4	2	42	11,100	13.5	5,900	14.0	12,100	13.5
V	8	2	34	13,500	15.0	8,600	15.0	14,300	16.0
Total Ave.	26	10	38.5	12,800	13.7	6,450	14.2	13,500	14.5

Stomatitis did not occur in these rats; differential counts showed granulocytes throughout the period and no significant reduction in the percentage of these cells. The bone marrow findings were not different from the normal litter mates. The rats showed hematuria continuously after the first few days' treatment. They became very weak and emaciated. Rats fed the deficient diet with no drugs showed no significant decrease in W. B. C. Necropsies showed no gross internal lesions.

*Summary.* The white blood count of rats, weakened by a deficient diet, may be reduced approximately 50% by oral administration of amytal and amidopyrine. Granulocytes do not disappear from the blood stream.