Les résultats de la déshydratation et de la pyrolyse de l'acide α-phleimycolique conduisent à la formule II. La formule brute $C_{85}H_{170}O_4$ doit être considérée comme une approximation à $\pm$ 5 CH_2 près*.

L'*acide β-phleimycolique*, p.f. 55–57°, [α D = + 5.4° ($CHCl_3$) ne diffère que très peu de l'acide α-phleimycolique. L'acide β est élué après l'acide α. Le mélange des deux acides donne deux maxima d'élution. $C_{85}H_{170}O_4$ Calculé %: C 81.33; H 13.55; P.M. 1256. Trouvé %: C 80.97; H 13.52; P.M.1227.

Ester méthylique, p.f. 45°. $C_{86}H_{172}O_4$ Calculé %: C 81.38; H 13.56. Trouvé %: C 81.22; H 13.45.

Alcool β-phleimycolique, p.f. 53°. $C_{85}H_{172}O_3$ Calculé %: C 82.18; H 13.96. Trouvé %: C 82.39; H 13.93.

Acide anhydro β-phleimycolique, p.f. 53°; λmax: 220 mμ, ε = 11,520 (dans l'hexane). $C_{85}H_{168}O_3$ Calculé %: C 82.45; H 13.68. Trouvé %: C 82.68; H 13.73.

Acide de pyrolyse de l'acide β-phleimycolique: p.f. 78–80°. $C_{24}H_{48}O_2$ Calculé %: C 78.19; H 13.13. Trouvé %: C 78.52; H 13.38.

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* Nous adoptons une formule en C_{85} pour indiquer que la pyrolyse donne un acide en C_{24} au lieu de l'acide en C_{26} qui est le produit de la pyrolyse des acides mycoliques de souches humaines et bovines pour lesquels nous proposons des formules en C_{87}[4,5,6].

ON THE RATIO OF THIAMINE PYROPHOSPHATE CONTENT AND RATE OF ACETOIN PRODUCTION IN HOMOGENATES OF VARIOUS MUSCLES OF NORMAL AND THIAMINE DEFICIENT PIGEONS

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Various enzymes bearing thiamine pyrophosphate (TPP) as a prosthetic group are known to exist in animal tissues, viz. pyruvic oxidase, α-ketoglutaric oxidase, pyruvic decarboxylase or carboligase (giving rise to the formation of acetoin from pyruvate), α-ketoglutaric decarboxylase. The "malic enzyme" probably also belongs to this group[1]. Large differences in TPP content exist between various tissues[2]. As a part of investigations regarding the question how the total TPP in the tissues is distributed over the enzymes mentioned above and at which relative rates the latter disappear on a thiamine free diet we have determined the ratio of total TPP content and rate of acetoin formation in homogenates of the large breast muscle (pectoralis major), the muscle of the left heart

ventricle and the leg muscles of normal pigeons and of pigeons, which had been on a thiamine free diet for 4 and 12 days (forced feeding of a food, containing a high percentage of carbohydrate). Details of the experiments will be found in an earlier communication[3]. The results are assembled in Table I.

TABLE I

THIAMINE PYROPHOSPHATE CONTENT AND ACETOIN PRODUCTION IN HOMOGENATES OF PIGEON MUSCLES

B = breast muscle, H = heart muscle, L = leg muscle.
TPP expressed in γ per 200 mg, acetoin in γ per 200 mg in 3 hrs.

$$Q = \frac{\gamma \text{ acetoin per 200 mg in 3 hrs}}{\gamma \text{ TPP per 200 mg}}$$

Numbers of muscles examined:

	Normal	*4 d. def.*	*12 d. def.*
B	15	8	9
H	15	8	10
L	8	10	9

All standard deviations mentioned are standard deviations of the means.

	Normal			*4 days def.*			*12 days def.*		
	TPP	*Acet.*	*Q*	*TPP*	*Acet.*	*Q*	*TPP*	*Acet.*	*Q*
B	1.44 ± 0.06	347 ± 11	244 ± 9	0.98 ± 0.02	312 ± 14	322 ± 20	0.64 ± 0.03	216 ± 8	336 ± 12
H	1.23 ± 0.05	200 ± 8	166 ± 8	0.77 ± 0.04	158 ± 16	207 ± 24	0.37 ± 0.02	23 ± 5	60 ± 9
L	0.55 ± 0.03	51 ± 3	96 ± 9	0.25 ± 0.01	36 ± 3	147 ± 16	0.17 ± 0.02	8 ± 1	45 ± 5

P values, calculated according to "STUDENT"'s method:

B.	P_Q (4 d.–N) < 0.001	P_Q (12 d.–N) < 0.001	P_Q (12 d.–4 d.) > 0.1
H.	P_Q (4 d.–N) < 0.05	P_Q (N–12 d.) < 0.001	P_Q (4 d.–12 d.) < 0.001
L.	P_Q (4 d.–N) < 0.001	P_Q (N–12 d.) < 0.001	P_Q (4 d.–12 d.) < 0.001

The following conclusions may be drawn:

1. *Normal pigeons.* For the TPP content as well as for the rate of acetoin formation and Q the following sequence is found: breast muscle > heart muscle > leg muscle. The decline of Q in this order means that in breast muscle homogenates a much higher percentage of the total TPP is present as the prosthetic group of pyruvic decarboxylase than in homogenates of leg muscle, while in this respect the heart muscle homogenates are intermediate between the breast muscle and leg muscle homogenates. (This conclusion is only valid when a TPP dependent enzyme is exclusively concerned with acetoin formation, or, if more enzymes are concerned, in the case that the TPP dependent enzyme is always the limiting factor of the rate of acetoin formation. At present there is no evidence, suggesting that the acetoin forming system of animal tissues consists of more than one enzyme.)

2. *Influence of thiamine deficiency.* On a thiamine deficient diet the TPP content as well as the rate of acetoin production decreases in each type of muscle. Q, however, always increases during the first 4 days of deficiency, while during the next 8 days it remains constant in breast muscle and declines in heart muscle and leg muscle to far below the initial value.

This means that during the first 4 days the percentage of pyruvic decarboxylase disappearing from all types of muscle is smaller than that of the collective other enzymes containing TPP. During the last 8 days the pyruvic decarboxylase and the collective other TPP bearing enzymes disappear at equal rate from the breast muscle, while in heart and leg muscle the pyruvic decarboxylase disappears more rapidly than does the group of other TPP bearing enzymes.

This work forms part of investigations on the metabolism and physiological function of thiamine carried out by H. G. K. WESTENBRINK and collaborators.

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