

OBSERVATIONS ON THE FACTOR CURATIVE OF NUTRITIONAL ACHROMOTRICHIA

Sirs:

In rats kept on a basal diet deficient in vitamin B and supplemented with vitamin B₁, riboflavin, and vitamin B₆ cutaneous lesions may appear which, in several instances, may become severe and even generalized.¹ In the same group of rats fur alterations also can be observed in the form of depigmentation ("graying") in piebald or black animals and of "rusting" in albino animals. These fur changes, which appear to be identical with those seen by several authors²⁻⁵ in rats kept under similar nutritional conditions, were considered by Morgan *et al.*³ and Lunde and Kringstad⁴ to be due to lack of one of the filtrate factors. Recently Oleson *et al.*⁵ reported that according to their experiments the dietary factor which prevents nutritional depigmentation of the fur (achromotrichia) in rats appears to be "distinct from all factors of the vitamin B complex which have thus far been identified and associated with specific function in the nutrition of the rat."

In our curative experiments, when concentrates of pantothenic acid with a degree of purification up to 40 to 50 per cent were added to the vitamin B-free diet containing vitamin B₁, riboflavin, and vitamin B₆, not only did the cutaneous lesions show distinct regression⁶ but the blackening of the fur also became definitely

¹ György, P., *J. Am. Chem. Soc.*, **60**, 983 (1938). György, P., and Eckardt, R. E., *Nature*, **144**, 512 (1939).

² Bakke, A., Aschehoug, V., and Zbinden, C., *Compt. rend Acad.*, **191**, 1157 (1930); *Chem. Abst.*, **25**, 939 (1931).

³ Morgan, A. F., Cook, B. B., and Davison, H. G., *J. Nutrition*, **15**, 27 (1938).

⁴ Lunde, G., and Kringstad, H., *Z. physiol. Chem.*, **257**, 201 (1939).

⁵ Oleson, J. J., Elvehjem, C. A., and Hart, E. B., *Proc. Soc. Exp. Biol. and Med.*, **42**, 283 (1939).

⁶ György, P., Poling, C. E., and Subbarow, Y., *Proc. Soc. Exp. Biol. and Med.*, in press.

evident. Administration of alkaline concentrates which had been autoclaved had no effect on either of these pathologic manifestations.

The first sign of blackening is a bluish discoloration of the skin, which is due probably to the first growth of normally pigmented hair shafts in the epidermis. Then the depigmented brown, gray, or white hair falls out and black fur appears.

The curvative doses of the concentrates varied between 75 and 200 γ in terms of pantothenic acid.

It should be pointed out that under the influence of concentrates of pantothenic acid the fur, as a rule, does not become completely black and depigmented areas often persist. In several rats the blackening progressively increased with larger doses.

These findings explain the inability of Oleson *et al.*⁵ to prevent the appearance of achromotrichia, on the one hand, and the accomplishment of a delay in its appearance, on the other.

In summary, concentrates of pantothenic acid, with a purification up to 40 to 50 per cent, appear to contain one factor but not the only factor concerned in the cure of nutritional achromotrichia in rats.

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