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**Effect of Sodium Fluoride on Lactic Acid Production by *Streptobacterium Casei*.**

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Fluorides, like the halogenated acetic acids, inhibit the formation of lactic acid from hexose or glycogen in biological systems by causing the formation of stable hexose esters.<sup>1</sup> We have reported observations on the course of iodoacetate poisoning in *Streptobacterium casei*,<sup>2</sup> and can now add to these the course of events in fluoride poisoning.

The experimental procedure was the same as previously reported<sup>2</sup> except that various concentrations of sodium fluoride instead of iodoacetate, made up in the suspension medium, were placed in the sidearms of the Warburg vessels.

As in iodoacetate poisoning there was a brief latent period on addition of fluoride. However, the rest of the picture was quite different. Whereas inhibition was observed in all cases with iodoacetate, in concentrations ranging from 0.0004% to 4.0%, with fluoride we found that concentrations up to 0.08% actually stimulated lactic acid production. At a concentration of 0.10%, the lactic acid-time curve was approximately the same as that of the control. Increasing the fluoride concentration up to 0.18% caused small decreases in the rate of lactic acid production, then there was a sharp decrease in this rate when the fluoride concentration reached 0.20%. Little more inhibition resulted from a fluoride concentration up to 0.5%.

Unlike the smooth continuous decrease in rates observed with iodoacetate, fluoride poisoning causes a rather sharp break in the rate of lactic acid production, after which the rate remains constant for several hours, at a characteristic value for each fluoride concentration.

As in previous experiments, lactic acid production in the control vessels was carried out at a constant rate for some 7 hours, the duration of the experiments.

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<sup>1</sup> Barrenscheen, H. K., Braun, K., and Dreguss, M., *Biochem. Z.*, 1931, **240**, 381.

<sup>2</sup> Field, J., and Field, S. M., *Proc. Soc. Exp. Biol. and Med.*, 1932, **29**, 733.