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Effect of Racemization on Digestibility of Casein and Egg Albumin by Pepsin and Trypsin.

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Racemized casein was prepared by Dakin and Dudley[1] by allowing N/2 sodium hydroxide to act on casein until the optical rotation fell to a minimum. Racemized egg albumin was prepared by Dakin[2] in a similar way. These authors claimed that neither racemized casein nor albumin was digested by proteolytic enzymes. In our preceding paper[3] we reported that ovalbumin denatured by dilute alkali was digestible by pepsin and trypsin. Since both racemization and denaturation are brought about by the action of alkali, the findings mentioned above are contradictory. A reinvestigation on the digestibility of racemized protein is, therefore, desirable.

Portions of racemized casein or egg albumin solution, after being adjusted to different pH's and mixed with pepsin or trypsin solutions, were incubated at 37.5° for varying lengths of time. At the end of the incubation period the undigested protein was precipitated with trichloracetic acid and the soluble nitrogen in the filtrate was determined. Our results showed that the digestion amounted to from 10 to 60% of the total N, even when corrected for complete autolysis of the protein contained in the enzyme preparation. We succeeded also in demonstrating that racemized egg albumin could be putrefied.

On the basis of these findings we conclude that racemized proteins are digestible by proteolytic enzymes.

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[1] Dudley, H. W., and Dakin, H. D., *J. Biol. Chem.*, 1913, xv, 271.

[2] Dakin, H. D., mentioned by Ten Broeck, C., *J. Biol. Chem.*, 1914, xvii, 369.

[3] Lin, K., Wu, H., and Chen, T., PROC. SOC. EXP. BIOL. AND MED., 1927, xxv, 199.