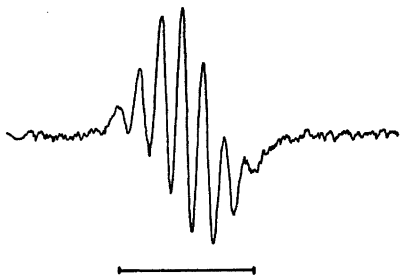

Fig. 1. ESR spectrum of free radicals derived from alloxan (0.01 M). Glutathione (0.0075 M). Phosphate buffer pH 7.4.

or barbiturate buffers together with either glutathione, cysteine hydrochloride or ascorbic acid. No radicals could be detected in buffer solutions containing only alloxan (0.01 M). (2) The maximum yield of radicals was obtained at pH 7.6. Radicals could be detected in the pH range between 4.6 and 8.6. (3) The radical concentration was found to increase with increasing amounts of glutathione. The maximum yield was obtained with a mole ratio of glutathione to alloxan equal to 0.75. (4) The radical concentration decreased slowly with time. The decay was more rapid in an alkaline medium than in an acid one (50 % decomposition at pH 8.4: 6 min, at pH 6.9: 18 min). (5) The ESR spectra of the radicals exhibited a hyperfine structure consisting of seven equally spaced lines with a splitting of about 0.4 gauss. (Fig. 1). The extreme width of the spectra was 3.0 gauss. The intensity ratio was rather closs to 1:4:8:10:8:4:1. Identical spectra were obtained in the reaction of alloxan with either glutathione, cysteine hydrochloride or ascorbic acid. (6) When dialuric acid (0.02 M, pH 6.2) was oxidized by an equimolar amount of potassium ferricyanide free radicals were formed which exhibited a spectrum identical with that obtained from alloxan.

These results indicate that an intermediate free radical is formed in the redox-reactions of the system dialuric acid-alloxan. The hyperfine structure is tentatively ascribed to the interaction of the odd electron with two nitrogen nuclei and two protons assuming equal coupling constants of the nitrogen nuclei and the protons.

1. Lazarow, A. *Physiol. Rev.* **29** (1949) 48.
2. Patterson, J. W., Lazarow, A. and Levey, S. *J. Biol. Chem.* **177** (1949) 197.

Intestinal Uptake of Micellar Solutions of Fatty Acids and Monoglycerides

John M. Johnston and Bengt Borgström

Department of Physiological Chemistry, University of Lund, Lund, Sweden

Mixed micelles of taurodeoxycholate, monoolein and oleic acid in the concentration of 2.4, 0.3 and 0.6 m equiv/l, respectively, at pH 6.3 have been incubated with intestinal slices from rat and hamster. The cellular uptake and incorporation into higher glycerides of ^{3}H-1-mono-olein and/or ^{14}C-oleic acid have been determined by the examination of the activity present in the slices following incubation.

In the case of the ^{14}C-oleic acid or ^{3}H-monoolein, approximately 60 % of the initial activity was taken up by the intestinal slice after 1 h incubation. Enzymatic hydrolysis of the 1-mono-olein was observed. In experiments in which both ^{14}C-oleic acid and ^{3}H-1-monoolein were included in the micellar solution a parallel uptake of the two isotopes was found. The predominate glyceride containing activity isolated from the intestinal wall following the incubation with either labeled oleic acid or mono-olein was found to be triglyceride. The uptake by the intestinal slice would appear to be enzymatically independent, since slices incubated at 37° and 0°C showed a similar uptake as well as those which had been heat denaturated prior to incubation. These two latter preparations, however, did not show an appreciable acylation. The relationship of the above findings to the overall absorptive process of fats by the intestine will be discussed.