35 (731)

The diffusion of iodo-eosin from ether through rubber membrane into ether.

By JACOB ROSENBLOOM.

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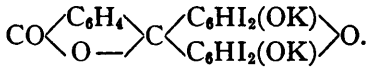
Rosenbloom and Gies[1] have shown that many ether soluble substances diffuse from ether through rubber membrane into ether, but oddly various phospholipins do not possess this property.

Together with Boas,[2] I was able to show that various cholesterolesters diffuse from ether through rubber membrane into ether. This is very interesting on account of the high molecular weight of these esters. Cholesterol-stearate with a molecular weight of 652.51 diffuses very readily.

For some time I have been trying to find an ether soluble substance of higher molecular weight than cholesterol-stearate and which could be easily detected in the diffusate. The free dye-acid of iodoeosin fulfilled these requirements. This free dye-acid has been employed by Professor Ehrlich as a very delicate reagent for free alkali in the erythrocytes of man.[3]

Iodo-eosin is the potassium salt of tetraiodo-fluoresceïn with the following formula,



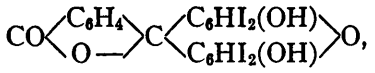
As a salt it dissolves in dilute alkalies with red color, but is insoluble in ether or any other organic solvent. The free dye-acid, however, is obtained as a yellow precipitate from the alkaline solution of iodo-eosin by adding hydrochloric acid in excess, and it dissolves readily in ether, or in any other organic solvent, but is insoluble in

[1] *Proc. Amer. Soc. Biol. Chem.*, 1910, 2, p. 8; *Jr. Biol. Chem.*, 1911, IX, p. xiv. *Biochemical Bulletin*, 1912, II, p. 64; George Crocker Special Research Fund, Vol. 3; (In press.)

[2] PROC. SOC. EXP. BIOL. AND MED., 1911, VIII, p. 132.

[3] Ehrlich-Lazarus, "Die Anemia," Vienna, 1898.

water. This free dye-acid has the following formula,



with a molecular weight of 836.

The dye-acid of iodo-eosin may be made by dissolving ten grammes of iodo-eosin (commercial dye) in one per cent. potassium hydroxide and then adding hydrochloric acid in excess. The dye-acid is precipitated at once, it can then be filtered off and the precipitate washed with hot water till the washings are acid-free. The precipitate after drying is easily soluble in ether, forming a beautiful yellow-colored solution.

When this free dye-acid in ether solution is placed inside of an intact rubber membrane immersed in ether, it can readily be noted that in a few minutes diffusion currents are visible and the ether outside of the bag becomes colored, showing that the free dye-acid has diffused.

The bearing of our results on the question of permeability and impermeability of membranes will be considered later.

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36 (732)

Chronic lead poisoning in guinea pigs.

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Of the twenty-eight guinea pigs treated with sublethal doses of carbonate of lead seven (25 per cent.) showed a peculiar condition to which so far attention does not seem to have been directed. There has developed a hemorrhagic, sero-fibrinous inflammation of the pericardium, of the peritoneum in the upper part of the peritoneal cavity and occasionally also of the pleuræ. In the pericardium the lesion commences with a hemorrhagic exudate followed by the formation of fibrinous deposits especially on the parietal layer and ending with organization with marked thicken-