METHOD OF DETECTING SODIUM IN CHICK EMBRYONIC TISSUES

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A histochemical method of detecting sodium in chick embryonic tissues by means of uranyl acetate in 1 N acetic acid solution is described. With the aid of this method the localization of sodium in the cell and its comparative distribution in different tissues can be determined.

The possibility of using crystal-optical methods for the determination of mineral elements in biological objects has now been recognized [2, 3].

To detect sodium in chick embryonic tissues the writer used one of the characteristic methods [1], in which the reagent was a solution of uranyl acetate in 1 N acetic acid.

Chick embryos at the 6th and 8th day of incubation were fixed with 10% formalyn and embedded in paraffin wax.

Dewaxed sections, 7 μ thick, were taken through to water and dried with ash-free filter paper. A few drops of a saturated solution of uranyl acetate in 1 N acetic acid, warmed to 40-50°C, were then applied to the sections and allowed to remain for 30 min, after which the solution was poured off the slide, traces of the reagent were wiped away with ash-free filter paper, and the sections were mounted in glycerol. Against the general grayish-brown background of the sections, the sodium compounds stood out as diffuse yellow spots (Figs. 1 and 2).

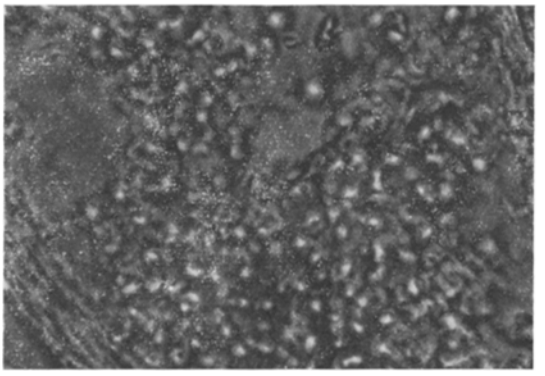

Fig. 1

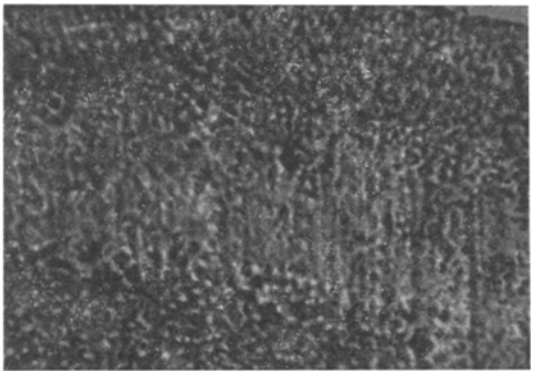

Fig. 2

Fig. 1. Longitudinal section through a blood vessel in the vascular zone of the yolk sac of a 4-day chick embryo: sodium compounds in the blood cells are stained yellow (400 ×).

Fig. 2. Longitudinal section through neural tube of an 8-day chick embryo: diffuse deposits of sodium (pale areas) in neural tube and adjacent mesenchymal cells can be seen (200 ×).

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The residue kept its color for a week or longer until the glycerol had evaporated.

The method can be used to determine the localization of sodium in the cell and to compare its content in different tissues.

LITERATURE CITED

1. F. N. Kucherova, Byull. Éksperim. Biol. i Med., No. 9, 123 (1967).
2. F. N. Kucherova, Byull. Éksperim. Biol. i Med., No. 6, 124 (1969).
3. I. M. Korenman, Microcrystalloscopy [in Russian], Moscow (1955).