The Oxygen Electrode Technique Utilized For Respiratory Measurements On Sand Dollar Sperms

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The respiratory rate of echinoderm sperm, measured with the oxygen electrode technique, was found to limited by the oxygen supply only at partial pressures below 10 mm. Hg. The influence on the respiration of temperature and mechanical conditions in the oxygen electrode chamber were further studied. It was found that both conditions have to be rigidly controlled. A special water-jacketed electrode chamber has been constructed, allowing a temperature constancy within the sperm suspension of ± 0.05°C., as well as strictly controlled mechanical convection conditions. In this chamber the sperm suspension may be repeatedly put to measurement, and prior to each measurement rapidly equilibrated against an atmosphere of any desired partial oxygen tension. The cell will be put to use i. e. for a study of the effect of substrate exhaustion on the oxidative metabolism of the gametes. ----- A photometric technique for rapid sperm count has been worked out.

The Pigment Of The Jelly Coat Granules Of The Sand Dollar Egg.

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Electrophoretic analysis of the isolated native pigment (from Echinarachnius parma) reveals a complex movement pattern of the substance. At pH 8 the pigment moves as a unit. At pH 6 and below two main components with different mobilities, each greater than the one at pH 8, are obtained. These latter components are apparently identical with the two dissociation states, which were found by photometric analysis. The mobility changes indicate that the isoelectric point of the chromoprotein is either to be found well in the alkaline range, or, more likely, that the strong dissociation of the chromogenic group is masking the dissociation pattern of the amino and carboxyl groups of the protein carrier. At lower pH a third component gains importance in the electrophoretic picture.