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Title: Relationships Between Embryological Age, Cytokinesis-1 and the Timing of Ploidy Manipulations in Fish

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Abstract: The duration of cytokinesis-1 (T), as measured in units of embryological age (intervals between consecutive and synchronous mitotic cell divisions), is termed t_o and is an important relationship in ploidy manipulations. T/t_o is constant and species specific in teleosts. Timing of shock initiation (t_s) for intervention to retain extrusion of the 2nd polar body (2Pb), or for mitotic (late) intervention, is associated with cytokinesis-1 and can be referenced to to units. The present study compares effects of temperature determinants, which define T/t_o in nine fish species. The temperature dependence of embryological age to is expressed by the equation $t_o = 10^a \times C^{-b}$. The equation corresponds with the Krogh's curve, where the power coefficient b is equal to and replaced by T/t_o. A standard equation (St) was formulated to calulate T/to in fish species. The to equations were compared to the standard equation, using Q_{10}-coefficients for oxygen demand of fish at four different temperatures: (alpha)- temperature limits of the fish's distributional range, (beta)- the minimum temperature of reproduction as expressed by Krogh's curve, (gamma)- the actual temperature of reproduction and (theta)- the temperture at which the T/t_o- curve intersects the standard curve.

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