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## Inheritance of Shape in Tomato Fruits

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## STUDIES ON THE GERMINATION OF PUMPKIN POLLEN

EDWARD F. CASTETTER

Attempts have been made to germinate the pollen of *Cucurbita pepo* and *Cucurbita moschata* on artificial media. Various combinations of sugars and agar agar dissolved in distilled water were first used. It was found that two grams of agar and 14 grams of sucrose in 100 cc. of solution gave the best results, 10 per cent germination being obtained. Unsuccessful efforts were made to increase the percentage of germination by the addition to the media of a few drops of orange juice and also a few drops of tomato juice. In all cases orange and tomato juice reduced the percentage of germination. It was found that increasing or decreasing the Hydrogen ion concentration caused a drop in the percentage of germination. In more recent studies the 2 per cent agar—14 per cent sucrose medium was supplemented with 1 per cent of commercial bacto-peptone. As a result 60 to 70 per cent germination was obtained. When the 1 per cent peptone was replaced with one-half per cent or .1 per cent  $KNO_3$ ,  $NaNO_3$ , or  $CaNO_3$ , the percentage and quality of germination were decreased.

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## INHERITANCE OF SHAPE IN TOMATO FRUITS

E. W. LINDSTROM

Ovate fruit is determined by a major recessive gene located in the first chromosome of the tomato. It is allelomorphic to both the round and the oblate types. These in turn are differentiated by a main factor and are allelomorphic to each other. This suggests a multiple allelomorphic series of genes controlling the oblate, round and ovate fruit shapes. Ovate shape (when contrasted with oblate) shows linked inheritance with dwarf growth habit, there being approximately ten or eleven per cent crossing over. There is also close linkage between ovate shape and the peach character of the fruit. High positive correlation exists between fruit shape (meas-

ured quantitatively by means of polar and equatorial diameter measurements) and fruit size, suggesting a linkage between shape factors and size factors on the first chromosome.

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