

In connection with this work I wish to express my appreciation to Dr. Muir, who supplied the Radium Emanation seeds.

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A biochemical reaction associated with sex in Cladocera.

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A biochemical test for sexual differences reported by Manoilov² and used as the Station for Experimental Evolution by Miss Sophia Satina and others with various plants and animals, has been applied to three races of Cladocera. This is probably the first time that such a biochemical difference between the sexes has been demonstrated in a crustacean.³

The first test with Cladocera was with small samples (0.02 gram) of females and males of *Moina macrocopa*. The female sample gave a faint violet coloration. The male sample gave no color. These samples, though each involving 200 or 300 individuals of this minute species, were too small to give the striking reaction obtained with more material.

The other Cladocera used were obtained from the wilds near Cold Spring Harbor. One form, a distinct type closely related to *Daphnia pulex*, was in an actively sexual condition. Every female was producing sexual eggs, and adult males were in the population in great numbers. A sample in duplicate of the females consisting of nearly 200 individuals was taken. A second sample was of males exclusively, about 350 individuals. A third sample was of a different type of *Daphnia pulex*, but obtained at the same time and from the same pond. The third sample was of a stock which was exclusively in parthenogenetic reproduction,

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² Manoilov, E. O., *Bul. Appl. Bot. and Plantbreed*, 1922-1923, xiii (2), 503.

³ A statement of the method used is appearing in *Science*, "Manoilov's Reaction for Identification of the Sexes" by Sophia Satina and M. Demerec.

each individual bearing numerous eggs, embryos or young in the brood chamber. The samples were of like size,—weighing 0.13 grams after the water had been removed as far as possible with filter paper. The animals were then placed in like amounts of 60 per cent alcohol (2 cc.) and the reagents applied. The sexual female sample developed a pronounced violet color. The parthenogenetic females showed the same color, but with much less intensity. But the males showed none of the coloration.

These results taken in connection with numerous tests made by Miss Satina on plants and the blood of certain vertebrates, show that these invertebrates give a biochemical reaction for sex comparable with that given by plants and higher animals.

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Studies of the formation of the streptococcus toxin.

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(Introduced by William H. Park).

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In a paper read before the American Society of Bacteriologists in December, 1924, Huntoon reported observations on the progressive formation of skin-reacting toxin in the Berkefeld filtrate from a 44 hr. culture of hemolytic streptococcus (scarlet fever). He suggested that this formation of toxin in the absence of organisms was probably due to the action of an enzyme (protease), secreted by the bacteria, in the filtrate. The following experiments were conducted to determine something of the nature of this enzyme action. The organism used was a strain of hemolytic streptococcus isolated from a scarlet fever patient and obtained from the Board of Health.

Qualitative tests on filtrates obtained by passing a 36 hr. culture (bacto-veal-horse-plasma broth) through a Berkefeld filter, and on extracts of the bacterial bodies (obtained as described below), failed to show the presence of active protease, using