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Effect of mammalian sex hormones

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Abstract

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Vigfusson, N. V. and R. J. Cano. Effect of mammalian sex hormones on fertility of N. crassa.

Ahmad and Rahman (1969 Neurospora Newsl 15: 11) have reported on the use of mommalion sex hormones to improve fertility in lys-5 mutants of N. crassa. Their results indicate that 6 drops of a solution containing 25ppm each of testosterone and progesterone, when added to a cross of lys-5 mutants, resulted in a rignificont improvement in fertility. This was manifested by on increase in the size of the perithecia, on increase in the number of ascospores shed, and a reduction in the number of days required for maturation.

The work in this laboratory centers around the study of sterile and semi-sterile mutants of N. crassa, each of which appears to block a specific stage of sexual development when employed as the mole strain in a cross with a wild type fertile strain. Tests have been conducted to determine whether or not the addition of these two hormones would effect on improvement in fertility in any of there strains. Progesterone and testosterone were dissolved in ethanol (0.5 g/100 ml) and subsequently diluted in water to obtain a solution containing 5ppm of each of the two hormones. One ml of this solution war then added to each crossing plate (containing a 2-3 day culture of the wild type protoperitheciol strain) at the some time as the conidia (spermatia) were added. Control plates were also prepared for each strain (1) with no additive and (2) with water-alcohol solution without hormone added. After 14 days' incubation at 25°C, the plates were examined to determine relative fertility. None of the 20 strains tested disploysd any rignificont improvement in fertility over the controls when treated with the hormones.

In addition to the mole sterile rtroinr, there are three strains in our possession which exhibit a different phenotype, in that they arc also completely sterile when used as female rtroinr in crosses with wild type fertile rtroinr. Each of there was also tested with the hormone solution. For each mutant strain a series of crossing plates was inoculated with the female sterile (protoperitheciol) strain. These were then divided into 3 lots with 1.0 ml of the hormone solution added (1) at the time of inoculation, (2) after 24 hours of incubation, and (3) after 72 hours of incubation. At 72 hours, conidia from the wild type (spermatial) strain were added. After 14 days of incubation at 25°C no rignificont improvement in fertility was noted in any of the strains treated with the hormone solution, as compared to the controls. - - - Deportment of Biology, Eastern Washington State College, Cheney, Washington 99004.