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Effects of mesterolone (a synthetic testosterone derivative) treated food on the sex reversal of young guppy, *Poecilia reticulata* (PETERS)

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The application of sex control techniques using different synthetic steroids is of particular interest in aquaculture. Guppy, *Poecilia reticulata*, is one of the most popular freshwater fish species which makes a significant contribution to the ornamental fish industry in Sri Lanka. Due to the attractive colour patterns and finnage varieties, male guppies have a higher demand compared to females and therefore, androgenesis is important to produce more male guppy in the aquarium industry. Mesterolone is a synthetic testosterone derivative used in oral androgen therapy and its effects on sex reversal of guppy was studied. 10-day old guppy (1.01 ± 0.0738 mg in total length and 4.27mg in weight) from the same brood stock and strain were used. They were fed twice daily with mesterolone treated dry feed (25 mg kg^{-1}) and compared with fish fed with untreated control feed for 49 days. Water temperature and pH were measured daily and dissolved oxygen concentration was measured twice a week in each tank. Sex of the fish and the effect of mesterolone on the gonadal development, was determined by histological studies. "Chi Square Test" was performed to compare the sex ratio between control and treated fish. Results indicated that the oral administration of mesterolone has not induced the masculinization, but caused atresia in most of the vitellogenic oocytes in treated fish. Asynchronization of treatment period with the period of sex differentiation of guppy and insufficient steroid dosage and the treatment period were suggested to be possible reasons for the failure to obtain complete masculinization. There was no significant difference of amount of feed consumed by fish in treated and control groups, enabling to conclude that mesterolone has not affected the preference of fish for treated feed. Oral administration of mesterolone has retarded the growth of vitellogenic oocytes, which is evident from the presence of atretic oocytes in the ovaries of treated fish.