**Oral presentation**

# Growth performance of the rabbitfish *Siganus sutor* raised at outdoor rearing ponds in Toliara, SouthWestern Madagascar


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## Abstract

In Madagascar, decrease of fish stock and poverty lead small scale fishermen to deploy destructive fishing gear. At Toliara Reef, fishermen using mosquito seine net catch up to 50% of juvenile fish and up to 42% of these juveniles belong only to the rabbitfish *Siganus sutor* species.This prohibited fishing practice disturbs the structure of adult fish populations and aquaculture may be one of the effective solutions to alleviate the problem of stock depletion. Rabbitfishes possess most of the desirable characteristics for aquaculture (e.g. herbivory and responsive to artificial food, high survival in high rearing densities) and the culture of several *Siganus* species have been tested in various countries. However, no study has been conducted on the rearing of *S. sutor* in Madagascar. Here, we investigated such a possibility regarding the growth performances and survival rate of *S. sutor*. Juveniles (initial mean body weight of 6.06g ± 2.43 and length of 6.23cm ± 0.8) were successfully retrieved from fishermen catches and we applied fish grow-out experiments in outdoor rearing pond ($16m^3$) for a duration of five months. The rearing density was 8 fish/$m^3$ and the performance of different diets were tested. A locally produced industrial fish food (composed of corn, soya flour, wheat, vitamins, oil…) at a feed ration of 8% of fish biomass were compared with cooked rice at a feed ration of 25% of fish biomass. Dissolved oxygen, temperature, salinity, turbidity and pH were recorded three times a day along the experiment. Fish fed with industrial fish food had a significant higher growth ($p<0.05$) with a final mean body weight of 68.11g ± 26.71 and a final mean length of 13.91cm ± 1.69. At the end of the experiment, fish fed with cooked rice displayed a mean body weight of 34.81g ± 15 and a mean length of 11.15cm ± 1.76. Feed conversion ratio is 2.99 for industrial food while it reaches up to 20.67 for the cooked rice. Surprisingly, fish fed with industrial food showed a significant lower survival rate ($p<0.05$) of 47.2%, compared to 95.7% for the cooked rice. Our study highlights the possibility of rearing juvenile rabbitfish in outdoor rearing pond using essentially locally produced industrial food. Controlling the rearing of juvenile rabbitfishes can be suggested as a practical approach to improve the survival rate of these juveniles through sea ranching and for improving livelihood of local communities through alternative activity.



**Keywords:** growth and survival performances, *Siganus sutor*, Siganidae, juveniles, aquaculture.