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Sustainable Aquaculture for a Secure Future

Title: Effects of teaseed cake on selective elimination of finfish in shrimp ponds

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Abstract: Teaseed cake contains 5.2-7.2% saponin, a glucoside that causes hemolysis in organisms. The higher sensitivity of finfish than crustaceans to the glucoside has made it an effective pesticide in shrimp ponds. To develop management techniques for the use of teaseed cake, the effect of dissolved oxygen (DO) and temperature at levels normally found in shrimp ponds on the potency of the toxicant and its rate of degradation when mixed with water were investigated. The experiments were conducted in 20-1 plastic tanks using two species of finfish, *Oreochromis mossambicus* and *Glossogobius giurus*, and two species of crustaceans, *Metapenaeus ensis* and *Penaeus monodon*. The experiments were run on a completely randomized design with three replicate tanks for each treatment. In experiment 1, 15 ppm of teaseed cake was needed to eliminate both species of finfishes within sex hours of application. Significant differences in the response of the two species of finfishes were observed. Both species of crustaceans survived concentrations of up to 20 ppm. Results of experiment 2 showed that the decrease of DO levels due to lack of aeration and the increase in water temperature resulting from exposure to sunlight significantly increased the sensitivity of finfish to teaseed cake. Exposure to sunlight for about 12 hours significantly decreased the potency of the glucoside on *O. mossambicus* in another experiment. The change was small and was not observed with *G. giurus*. It is recommended that the water level in shrimp ponds be reduced to one third before application, that teaseed cake be applied in shrimp ponds in minimum dosages towards noon when water temperature is higher and that the water depth be restored after about six hours of application.

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