

EFFECT QUIXALUD ADDITION ON FOOD PREFERENCE AND RESISTANCE FROM DEGRADATION

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ABSTRACT---We investigate the effect of quixalud on food preference and resistance from degradation. Quixalud was chosen because of its antimicrobial properties but it is not an antibiotic. The aim of this research is to evaluate the effect of quixalud addition on food preference by tiger shrimp and its resistance from degradation. The experiment was designed using Factorial with two treatments: quixalud concentration and soaking period. We used three concentration of quixalud: 30 ppm, 60 ppm and 90 ppm. Each concentration were soaked at difference period of time, which were: 24 hours, 48 hours and 72 hours. Food preference and resistance from degradation were monitored. Results indicated that there was no different of shrimp food preference between quixalud feed and controls or feed without quixalud. However, there was a tendency that shrimp preferred feed with 60 ppm of quixalud. Quixalud has no effect on the remaining solid feed. It seem likely that the remaining solid feed is mainly affected by the strength of binder rather than the presence of an antibacterial compound, such as quixalud.

Keywords: quixalud, food preference, resistance, degradation.

ABSTRAK---Telah dilakukan penelitian tentang pengaruh penambahan quixalud terhadap pemilihan pakan oleh udang windu dan ketahanan pakan dari kerusakan. Quixalud dipilih karena sifat antimikrobanya, meskipun bahan ini bukan termasuk dalam kelompok antibiotik. Tujuan penelitian ini adalah untuk mengetahui pengaruh quixalud terhadap pemilihan pakan dan ketahanan dari kerusakan. Penelitian ini dirancang menggunakan Faktorial, dengan perlakuan konsentrasi quixalud dan lama waktu perendaman. Terdapat tiga konsentrasi quixalud dalam perlakuan yaitu 30 ppm, 60 ppm dan 90 ppm. Setiap konsentrasi quixalud direndam selama 24 jam, 48 jam and 72 jam. Selanjutnya pemilihan pakan oleh udang windu dan ketahanan pakan dari kerusakan diukur. Hasil penelitian menunjukkan bahwa tidak ada perbedaan pengaruh pemilihan pakan antara perlakuan konsentrasi dengan kontrol. Tetapi terdapat kecenderungan bahwa udang lebih menyukai pakan dengan konsentrasi quixalud 60 ppm. Penambahan quixalud juga tidak berpengaruh terhadap daya tahan pakan dari kerusakan. Diperkirakan ketahanan pakan dari kerusakan lebih ditentukan oleh kekuatan perekat dibanding kehadiran bahan antimikroba.

Kata kunci: quixalud, pemilihan, ketahanan, kerusakan pakan.

INTRODUCTION

Quixalud is a non-antibiotic compound that contains of halquinol. The anti-microbial properties of halquinol have been proven to be effective against various kinds of microorganisms. This unique property of halquinol has a strong relevance to be used as feed additive in shrimp cultivation. The property of halquinol in quixalud is expected to fulfill the need in overcoming the problem in shrimp cultivation. One of problems in shrimp cultivation is caused by accumulation of unconsumed feed. Therefore, high concentration of organic matter in the sediment. Eventually, these condition will

cause an increase the number of microorganisms and oxygen consumption.

The use of feed additive, quixalud may become an alternative solution, since this harmless non-antibiotic product can act as anti-microorganisms and increase feed absorption on animals, all at once. The use of quixalud in shrimp cultivation is expected to inhibit the rate in degrading of unconsumed food.

This research is aimed to evaluate the use of quixalud as feed additive in shrimp cultivation on food preference and resistance from degradation.

METHODOLOGY

1. Effect of quixalud on shrimp food preference

The aim of this research is to evaluate effect of quixalud on shrimp food preference. This experiment was done in 5 of 30cm x 60 cm x 50 cm of aquaria. Each aquarium was filled with the same volume of seawater (height of water: 40 cm). Five (5) shrimp (approximate weight: ± 4 – 5 grams) were tested to choose a different type of feed, i.e.: with and without quixalud. The two different type of feed were each other placed at opposite side of aquarium. The food preference of shrimp was evaluated by hourly monitored the number of shrimp that moved to and fed on the given treatment.

2. Effect of quixalud on feed resistance from degradation

We evaluate the effect of quixalud on water quality and feed resistance from degradation. Quixalud was solved in 90% of alcohol as emulsifier, then diluted in pure water, continued by mixing with white eggs as

binder, and finally coated into the shrimp feed. This feed then, dried under the sun.

The feed resistance was tested by adding 3.75 gram of feed in 3.5 liters volume of glass jars filled with seawater. This experiment used totally 36 jars to compare among different concentration of quixalud, i.e.: 30 ppm, 60 ppm and 90ppm, in different time series of soaking, i.e. 24 hours, 48 hours and 72 hours. Every treatment and period of soaking was repeated 3 times. The shrimp feed without quixalud were used as controls. The feed resistance was evaluated by weighing the remaining of solid feed after filtering and drying to the stable weight.

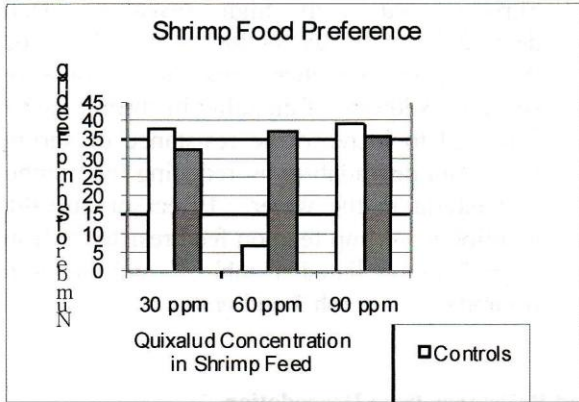
RESULTS AND DISCUSSION

Effect of Quixalud on Shrimp Food Preference

This experiment was aim to know if quixalud is preferred by shrimp than control feed (without quixalud). The shrimp food preference was measured by monitoring number of shrimp moved to and fed on given feed. Results of this experiment are show in table 1. and figured out in graph 1.

Table 1. Effect of Quixalud on Shrimp Food Preference Between Quixalud Feed and Controls

Average of Total Number of Shrimp Feeding on Given Feed						
Days of Monitoring	Type of Feed					
	Controls	+ 30 ppm quixalud	Controlss	+ 60 ppm quixalud	Controls	+ 90 ppm quixalud
1	15	0	3	16	12	27
2	01	24	1	18	14	2
3	22	8	3	03	13	7
Total	38	32	7	37	39	36



Graph 1. Differences of Shrimp Food Preference Between Quixalud Feed and Controls

Results from this experiment indicated that there was no different of shrimp food preference between quixalud feed and controls or feed without quixalud. However, there was a tendency that shrimp preferred feed with 60 ppm of quixalud.

The effect of quixalud addition at difference concentration on food preference for tiger shrimp is listed in table 2, and figured out in graph 2.

Table 2.
Effect of Quixalud on Shrimp Food Preference Among Different Concentration of Quixalud

Total Number of Shrimp Feeding on Certain Feed				
Days of Monitoring	Ammount added quixalud			
	+30 ppm	+60 ppm	+30 ppm	+90 ppm
1	4	11	3	1
2	06	06	0	9
3	12	14	4	10
Total	22	31	7	20

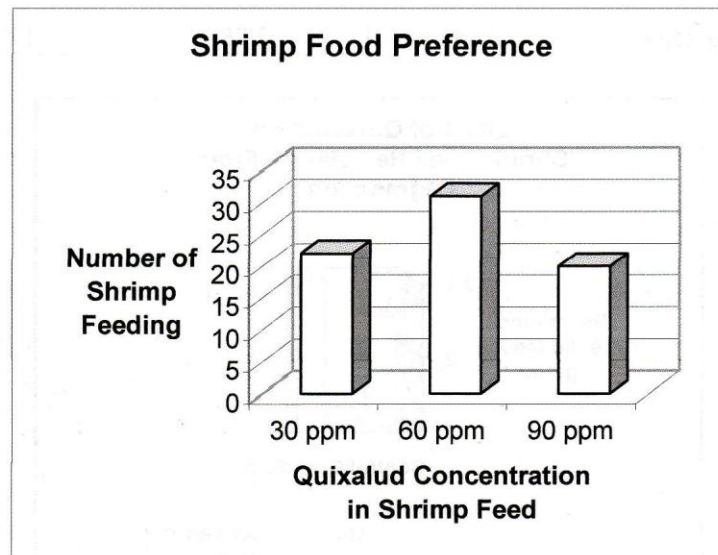


Figure 2.
Differences of Shrimp Food Preference Among Different Concentration of Quixalud

Results indicated that, there is no significant difference of food preference among different concentration of quixalud. However, there is a tendency that addition of quixalud at concentration of 60 ppm was the most preferred.

Effect of Quixalud on Food Resistance from Degradation.

Food resistance from degradation is important in shrimp pond management.

Shrimp feed with high resistance from degradation will stay for longer period of time, therefore, has a higher chance to be found by shrimp. Addition of quixalud in shrimp feed is expected to increase the resistance of shrimp feed from degradation by reducing the number of bacteria in the water. Effect of quixalud addition in shrimp feed on feed resistance from degradation is listed in table 3. and shows in figured out in graph 3 and graph 4.

Table 3. Effect of Quixalud on Food Resistance from Degradation

Average of Remaining Solid Feed in the Water (ppm)			
Treatments	Soaking duration		
	24 hours	48 hours	72 hours
Controls	2.10	2.31	1.44
+ 30 ppm quixalud	2.47	2.27	1.55
+ 60 ppm quixalud	2.33	2.26	1.28
+ 90 ppm quixalud	2.34	2.28	1.47

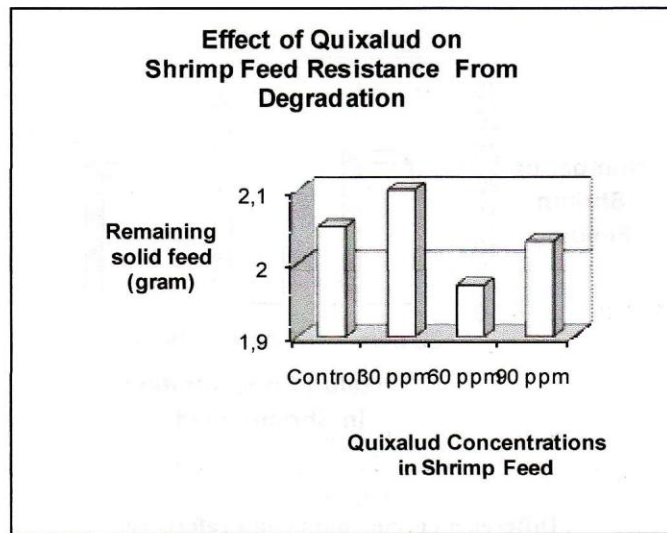


Figure 3.
Remaining Solid Feed Differences
Among Different Type of Shrimp Feed

This experiment resulted that the resistance of feed that measured by weighing of the remaining solid feed indicated that addition of quixalud has no effect on the remaining solid feed. It seem likely that the remaining solid

feed is mainly affected by the strength of binder rather than the presence of an antibacterial compound, such as quixalud.

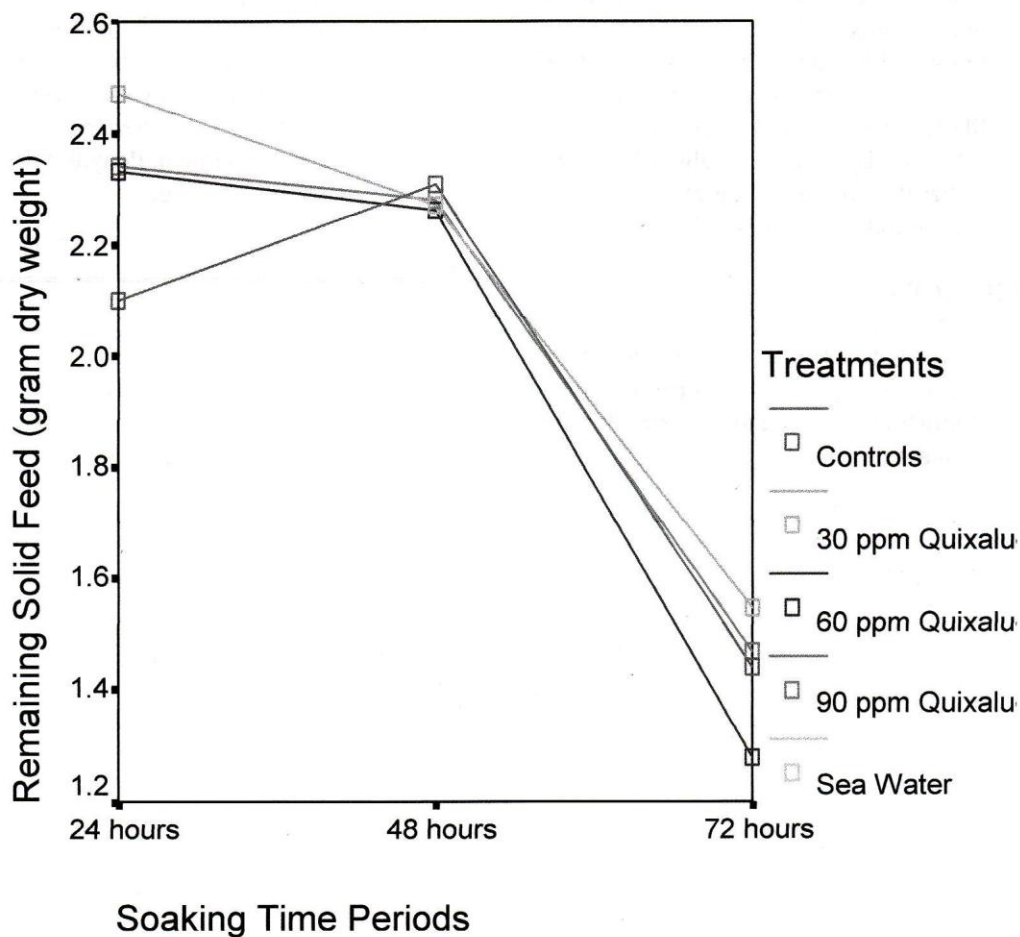


Figure 4.
Changes in Remaining Solid Feed Among Different Feed and Soaking Time Period

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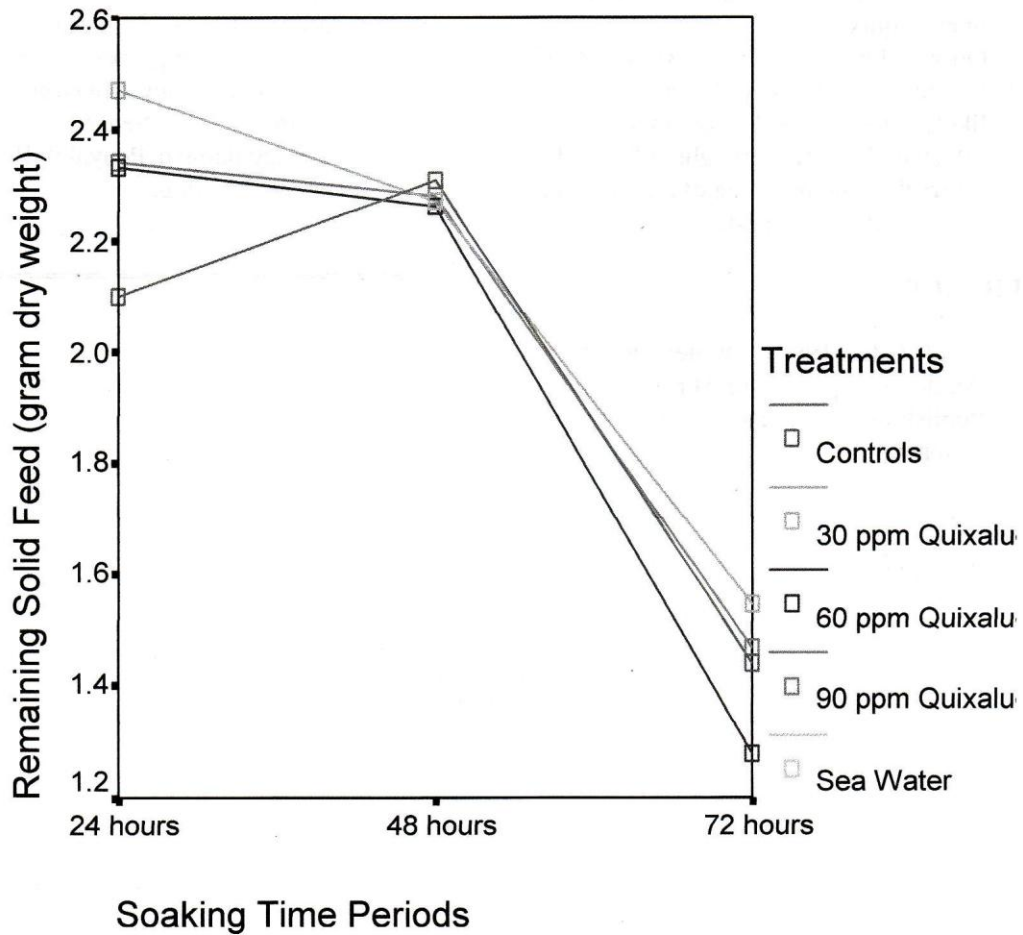


Figure 4.
Changes in Remaining Solid Feed Among Different Feed and Soaking Time Period

CONCLUSIONS

1. Quixalud has no significant impact on shrimp food preference. However, there was a tendency that shrimp prefer to feed on food that contain 60 ppm of quixalud.
2. Quixalud has no effect on shrimp food resistance from degradation. It seem likely that, food resistance was affected by the strenght of bender rather than the presence of antibacterial compound of quixalud.

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