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EFFICACY STUDY REPORT OF NIRAPARA FRESH WASH IN FISHES AND PRAWNS TO REMOVE THE ANTIBIOTICS, FORMALDEHYDE AND HEAVY METAL TRACES

Science

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ABSTRACT

Nirapara fresh wash is a natural formulation to clean the Vegetables, fruits and non-vegetableitems like fish, meat etc. Nirapara fresh wash help to remove dirt, toxins, microbes, heavy metals, pesticides and other foreign particles from vegetables/fruits and removes toxins, biological fluids,microbes ,antibiotics, drugs (antibiotics and steroids), poisons,pesticides and other chemicals from non vegetable items. And it offers freshness to vegetables/fruits andnon-vegetable items.The product is not intended for direct oral consumption. It is only used for washing the vegetables /fruits and non-veg items.

Antibiotics and heavy metals are administered to live fish which are collected from marine sources and allowed to habitat in marine condition in the study aquarium. The study materials are administered by directly diluting the compounds to the aquarium tank and scarify the fishes/prawns and wash with Nirapara fresh wash. From the analytical reports, the heavy metals, antibiotics and formaldehyde concentration in fishes and prawns after washing with Nirapara fresh wash was significantly reduced. The freshness or physical properties of treated fishes/prawns are not affected or altered.From the study the product is found to be safe and naturally removes the heavy metals and antibiotics from fishes and prawns in a very significant ratio.

KEYWORDS

Nirapara fresh wash, Antibiotics, Heavy metals, formaldehyde, fish wash.

INTRODUCTION

Heavy metals are natural components in the earth's crust that cannot be degraded or destroyed. They are dangerous substances because of their bioaccumulation and toxicity can threaten aquatic living organisms (1). The Industrial wastes and mining of metals are the potential sources of heavy metals accumulation in the aquatic environment.

Antibiotics are used intensively in live stock, aquaculture and in the medical treatment. Many pharmaceutical compounds are not completely metabolized by the human body, nor completely eliminated by the waste water treatment systems, before their release to the environment and later reach the oceans (2)

Fishes crabs and shrimps form an important link in transferring the media to humans. The estimation of heavy metals in the food-chain will be used to know the heavy metal transfer to the human body through sea-food. The possible ways of heavy metal accumulation in fishes are through the direct uptake of water and food on the heavy metal polluted environment. The heavy metals entering to the fish through gills and other organs have a chance to get accumulated in different parts of the body tissues and the excessive amount can build up to a toxic level (3,4).

According to scientific investigation report 2009 about 25% of fish from 291 streams around the US contained heavy metals more than the recommended limit. Another study found that one-third of fish caught on the New Jersey shore had mercury levels higher than 0.5 parts per million, a level that could cause health problems for people who eat this fish regularly (5, 6).

A report was published in Times of India about the antibiotic detection in meat and fish.Producers of chicken, pig and other meat, as well as shrimp, feed them growth-promoting antibiotics in low doses. This practice does not kill bacteria but makes them resistant to the drug. When the meat or shrimp is consumed, the drug resistant bacteria are transferred to humans. If a person ingests the resistant bacteria via improperly cooked meat and becomes ill, he or she may not respond to antibiotic treatment. Four years ago, Japan had rejected more than 10 consignments of shrimp after detecting ethoxyquin, an antioxidant, in them. Most of the exporters were from Bengal and Odisha (7)

Nirapara fresh wash is a natural formulation to clean the Vegetables, fruits and non-vegetableitems like fish, meat etc. Nirapara fresh wash help toremove dirt, toxins, microbes, heavy metals, pesticides and other foreign particles from vegetables/fruits and removes toxins, biological fluids,microbes ,antibiotics, drugs (antibiotics and steroids), poisons,pesticides and other chemicals from non vegetable items. And it offers freshness tovegetables/fruits and non-vegetable items. (8)

MATERIALS AND METHODS

Nirapara Fresh wash formulation

SI.NO	INGREDIENTS	QUANTITY (%)
1	Curcuma domestica	10
2	Herbal extract 001*	5
3	Natural Vinegar	30
4	Herbal powder 002*	3
5	Herbal extract 003*	2
6	Water	50

*denotes various edible herbs which are completely safe to use and possess sufficient scientific research papers are available to demonstrate its efficacy and safety

Table 1 : Nirapara fresh wash- fish and meat formulation

Accurately weigh all the ingredients and make a fine paste by adding vinegar and finally add water to make up the volume.

Usage directions

10 ml of Nirapara fresh wash-Meat and Fish should be mixed with 1 litre of tap water in a bowl and dip the required veg/non veg stuffs on it. Wait for 20-30 minutes and strain the liquid out. Wash and rinse thoroughly with fresh tap water and dry.

EVALUATION

Physical Evaluation

Physical evaluation (color) was done by sensory and visual inspection

pH

One gram of sample of Nirapara fresh wash-Meat and Fish was taken and dissolved it into 100ml distilled water. The pH of solution was measured by previously standardized digital pH meter (9).

Acidity

25 mL of Nirapara fresh wash-Meat and Fish is pipette into Erlenmeyer flask and add 0.05ml of 0.1 N thiosulphate solution and titrated against 0.02N hydroxide solution using methyl orange as indicator .The end point is noted when colour change from orange red to yellow(10).

Live Fish collection

Live marine fishes are collected from Arabian sea in the region of Cherai, Cochin, Kerala India. Live fishes are collected and immediately transfer to aquarium with pre-set marine conditions. The animals are allowed to saturate and inhabitate with new surroundings for three to five days.The treatment will start after 5 days to maintain the healthy condition of the fish. Negative control group fishes were scarified and kept in freezer compartment of refrigerator.

Figure 1: Live fish collected from sea and occupy in aquarium condition

Selection of Heavy metals

Based on reports in newspapers and articles published in various magazines related to heavy metals in marine water select four heavy metals, Cadmium, Lead, Nickel, Mercury, and Arsenic. Which are collected from Modern scientific laboratories, Cochin and stored appropriately.

Selection of Antibiotics

Antibiotics are locally collected from pharmacies and store properly.

Table 2: Name of antibiotics used for experiment

Si.no	Name Of Antibiotics		Doses
	Trade Name	Type Of Antibiotics	
1	Ciplox	Ciprofloxacin	500MG
2	Chloramphenicol	Chloramphenicol	250MG
3	Niftas	Nitrofurantoin	100MG

Heavy metals test

0.2% of each Heavy metal are directly dissolved into study aquarium water where the fishes/ prawns are accommodated. The administration was repeated every 24 hours for three days without changing the water in the study tank.All the observations were recorded during the study period.

After three days of treatment collected the fishes and sacrificed in which 250gm of fishes are taken as test control .Which are directly washed with tap water and stored as test control. Another250gm of fishes was treated and washed with Nirapara fresh wash-Meat and Fish. After 20-30 minutes collect the fishes and wash with tap water and stored as Test sample.

Formaldehyde test

Live fishes/ prawns were scarified and cut into small pieces and socked into 5% formaldehyde solution for 10-15 minutes.In which 250Gms taken and washed with tap water and labeled as control. Another portion of 250 gms fishes were socked into Nirapara fresh wash. After 20-30 minutes collected the fishes/ prawns and wash with tap water and labeled as Test sample.

Antibiotic test

Selected antibiotics are directly dissolved into aquarium water where fishes/Prawns were accommodated. This procedure of administration was repeated every 24 hourly for three days. All the observations made during the study period were recorded.

Figure 2 : Antibiotics treatment for marine fish in aquarium

After three days of treatment collected the fishes/ prawns and sacrificed.A 250gm of fishes/ prawnswere directly washed into tap water and labeled as test control. Another portion of 250gm of fishes/prawns were treated with Nirapara fresh wash-Meat and Fish. Cut it into small pieces and soaked into Nirapara fresh wash. After 20-30 minutes collected the fishes/ prawns and washed with tap water and labeled as Test sample.

RESULTS

Formulation evaluation

Table 3: Nirapara fresh wash evaluation

SI. NO	PARAMETERS	RESULT
1	Appearance	Light brown liquid
2	Acidity	3.94%
3	pH	2.97 at 250 C

Observation during the study

There were no death occur to fishes/Prawns during thestudy period. There is no reduction in food consumption during treatment period.

Heavy metals

Table 4: Heavy metals result in Fishes which are treated and non-treated with Nirapara fresh wash

SI. NO	PARAMETERS	RESULT CONTROL (Mg/Kg)	RESULT TEST
1	Cadmium	00.50	Not Detected
2	Lead	02.00	Not Detected
3	Nickel	02.50	Not Detected
4	Mercury	00.10	Not Detected
5	Arsenic	00.10	Not Detected

Inference: There is no heavy metals are detected in Fishes after treating with Nirapara fresh wash-Meat and Fish

Antibiotic evaluation

Table 5 : Antibiotics result in Fishes/Prawns which are treated and non-treated with Nirapara fresh wash

SI.NO	TEST PARAMETER	TEST GROUP	RESULT(MG/KG) TEST CONTROL	RESULT(MG/KG) TEST SAMPLE
1	Chloramphenicol	Prawn with shell	152.00	98.00
		Fishes	13.60	02.01
2	Ciprofloxacin	Prawn with shell	40.50	12.00
		Fishes	122.00	17.20
3	NITROFURAN PARENT COMPOUND	Fishes	588.00	Not detected
	• Nitrofurazone			
	• Nitrofurantoin	Fishes	462.00	07.34
	• Furazolidone	Fishes	19.60	Not detected
	• Furaltadone	Fishes	Not detected	Not detected
4	NITROFURAN PARENT COMPOUND	Prawn with shell	Not detected	Not detected
	• Nitrofurazone			
	• Nitrofurantoin	Prawn with shell	10.30	01.01
	• Furazolidone	Prawn with shell	Not detected	Not detected
	• Furaltadone	Prawn with shell	Not detected	Not detected
5	Jh NITROFURAN METABOLITE	Prawn with shell	Not detected	Not detected
	• 3-Amino 2-oxazolidinone(AOZ)			
	• 3-Amino-5-Morpholino methyl 2-oxazolidinone(AMOZ)	Prawn with shell	Not detected	Not detected
	• 1-Amino hydantoin(AHD)	Prawn with shell	Not detected	Not detected
	• Semi carbazide(SEM)	Prawn with shell	Not detected	Not detected

Antibiotic concentration reduced significantly from fishes/prawns after treating with Nirapara fresh wash-Meat and Fish. In which Nitrofurazone and furazolidone are completely removed from fishes after treating with Nirapara wash.

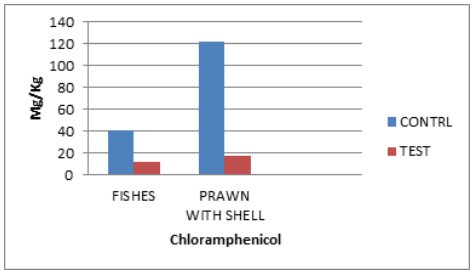

Figure 3: Bar diagram for Chloramphenicol result in Prawns/Fishes which are treated and non-treated with Nirapara fresh wash

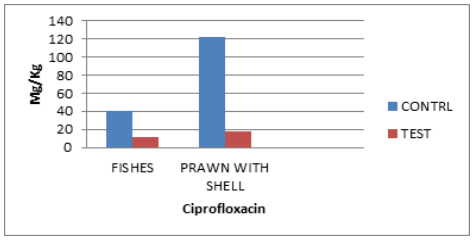

Figure 4: Bar diagram for Ciprofloxacin result in Prawns/Fishes which are treated and non treated with Nirapara fresh wash

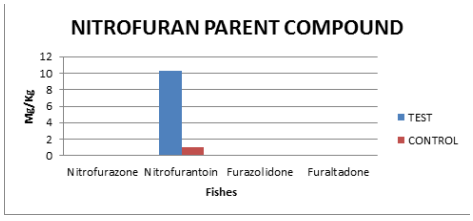

Figure 5: Bar diagram for Nitrofuran result in Fishes which are treated and non treated with Nirapara fresh wash

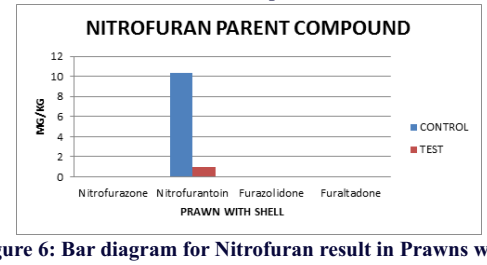

Figure 6: Bar diagram for Nitrofuran result in Prawns with shell which are treated and non treated with Nirapara fresh wash

Table 6 :Formaldehyde result in Fishes which are treated and non treated with Nirapara fresh wash

Si. No	Test Sample	Parameter	Result
1	Fish Treated With 5% Formaldehyde	Formaldehyde	133Mg/100 Gm
2	Treated Fish With Formaldehyde And Washed With Plain Water After Soaking In Plain Tap Water For 10 Minutes	Formaldehyde	43.7Mg/100 Gm
3	Treated Fish With Formaldehyde And Washed With Plain Water After Soaking With Nirapara Fresh Wash-meat And Fish Wash For 10 Minutes	Formaldehyde	Not Detected

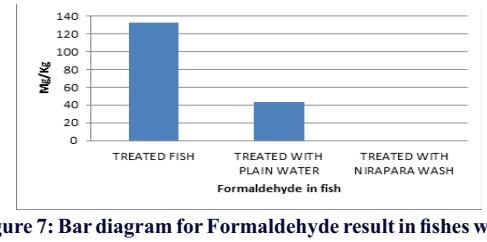

Figure 7: Bar diagram for Formaldehyde result in fishes which are treated and non treated with Nirapara fresh wash

From the observation formaldehyde concentration reduced from fishes/prawns after treating with Nirapara fresh wash-Meat and Fish

CONCLUSION

Nirapara fresh wash-Meat and Fish prepared with natural ingredients which do not alter the freshness of the prawns and fishes.The formulation is salt free combination so it never alters the taste during cooking and helps to removes the foul smell from the fishes/prawns.

The formulation found to be physically and chemically stable. All heavy metals are removed after the treatment with Nirapara wash.About 80-90% of antibiotics are removed from fishes/prawns after treatment with Nirapara wash and also 100% of formaldehydes concentration also reduced.Thus the efficacy of the product is established by the current studies. Further studies are necessary for the standardization of the dose and related subjects and needed to repeat the studies with various other species of marine animals.

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