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Evaluation Of Physical Stability And Antibacterial Properties Of Snakehead Fish *(Ophiocephalus Striatus)* Cream Containing Immunoglobulin

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Abstract : Snakehead fish (*Ophiocephalus striatus*) powder contains immunoglobulins as well as possessing antibacterial properties. The aim of this study was to investigate physical stability of creams containing snakehead fish powder and *the in vitro* antibacterial activity against selected human pathogens.The snakehead fish blended and squeezed to express a liquid with water and oil phases. Water phase fraction was driedby atomizer as powder then made into o/w cream by using nonionic emulgents (Tween and Span 60) of 2%, 3% and 4%. The cream was made containing 2% snakehead fish powder. Physical properties of creams such as organoleptic, creaming, viscosity, phase inversion, and pH test were evaluated. Creams, which were stable physically, were subjected to preliminary screening for antibacterial activity against *Staphylococcus aureus*, *Bacillus subtilis*, and *Pseudomonas aeruginosa*. The agar diffusion method was used to determine the inhibition zones of snakehead fish cream 2% in mm (3 replications).Organoleptic observations showed no change in color and odor for all of cream formulations before and after stress conditions. Creaming test showed that all of the formulaswere stable or showed no creaming after stress conditions. Statistical analysis using Completely Randomized Design (CRD) showed that the concentrations of nonionic emulgents gave a real influence on the cream viscosity before and after accelerated storage conditions. Phase inversion tests stated that all of the formulas did not show emulsion type change. Finally, pH test indicated that all of the formulas had pH 5 – 6, the same as pH of skin. Meanwhile, there was no inhibitory zone forthe creams against *Staphylococcus aureus* and *Pseudomonas aeruginosa*, but the snakehead fish cream showeda radial zone of inhibition against *Bacillus subtilis*for all three replicates (23, 20, and 22 mm).All cream formulations with different emulgent concentrations can be categorized as physically stable and snakehead fish cream of 2% had antibacterial activity against *Bacillus subtilis*.

Keywords : antibacterial properties, cream, emulgent, non-ionic, snakehead fish.

Introduction

Nowdays, modern drugs particularly antibiotic has experienced a lot of resistance against pathogen bacteria in the human body. Therefore, it needs to explore new active compounds which derived from natural products such as animals or plants and have function as new antimicrobial compounds[1].

Snakehead fish (*Ophiocephalus striatus*) is one of fresh water fish which can grow up till 1 metre, big head such as snake and bread in river, rice field, and swamp[2]. This fish contain high protein particularly protein total (85.60%), albumin (30.20%), lipids (5.1%), mineral and amino acids. Besides that, snakehead fish

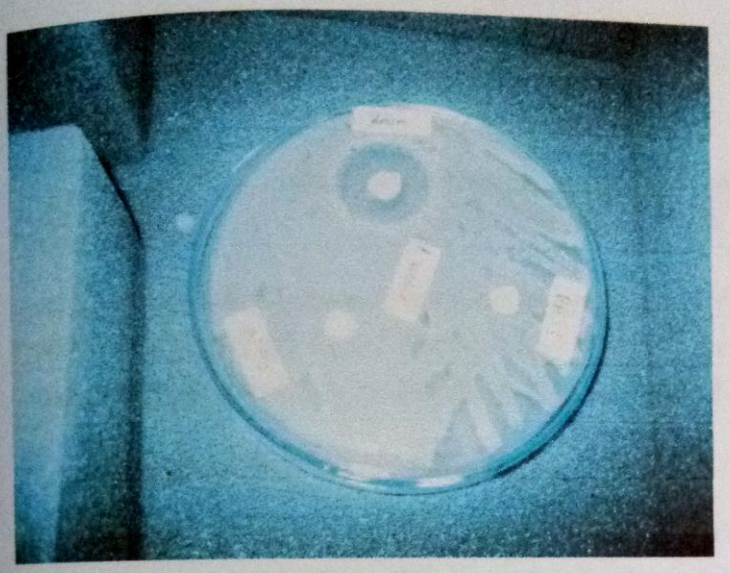

Fig. 5 The inhibition zone of snakehead fish cream 2%

All cream formulations of 2% snakehead fish dry extract with different concentrations can be categorized as physically stable and had antibacterial activity against *Bacillus subtilis*.

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