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## 鱼鳞蛋白酶解物为基料的涂膜剂对鲫的保鲜效果

### Effect of fish scale protein hydrolysates-based films on preservation of crucian carp(*Carassius auratus*)

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中文关键词: [鲫](#) [鱼鳞蛋白酶解物](#) [迷迭香提取物](#) [涂膜保鲜](#)

英文关键词: [crucian carp\(\*Carassius auratus\*\)](#) [fish-scale protein hydrolysates](#) [based films](#) [rosemary extracts](#) [coating preservation](#)

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中文摘要:

研究了鱼鳞蛋白酶解物为基料的复合涂膜剂对鲫4℃贮藏过程中其鲜度指标变化和保鲜效果的影响。实验将去鳞、去内脏并洗净后的鲫分别于4℃的鱼鳞蛋白酶解物溶液和添加了迷迭香的鱼鳞蛋白酶解物溶液中浸泡1.5 min,沥干后用保鲜膜包好于4℃条件下贮藏。通过测定鱼体贮藏过程中细菌总数、TBA值、TVB-N值、K值、重量损失、感官评分等鲜度指标的变化规律,评价了鱼鳞蛋白酶解物对鲫在4℃贮藏条件下保鲜作用效果。结果表明,涂有鱼鳞蛋白酶解物的鲫的细菌总数、TVB-N值、K值、TBA值、重量损失在10 d内显著( $P<0.05$ )低于对照组,而感官品质显著( $P<0.05$ )高于对照组,在4℃条件下能延长鲫贮藏期8 d左右;涂有添加了迷迭香提取物的鱼鳞蛋白酶解物的鲫的TVB-N值、K值、重量损失在4~6 d内显著( $P<0.05$ )低于对照组,而感官品质显著( $P<0.05$ )高于对照组,但不能有效延长鱼体的贮藏期。鱼鳞蛋白经过胃蛋白酶在一定条件下酶解后,其产物对鱼体具有较好的保鲜效果,是一种良好的鱼体生物保鲜涂膜材料,但不适宜与迷迭香提取物联合使用。

英文摘要:

Crucian carp(*Carassius auratus*) is a main freshwater fish species and has been widely used as a raw material for food productions. The output of crucian carp reached 1 955 500 tons in 2009 in China, but a considerable number of them spoiled because of lacking good preservation. Therefore, it is necessary to develop an efficient method of preservation of fish. During the last decade, there has been a developing interest in edible or biodegradable films based on biopolymers, which can be used to cover the body of fish to prolong the shelf life of fish products. Fish scale is easier to obtain compared to other materials and is always abandoned. It is economical to make a kind of fish scale film obtained from fish scales by hydrolysis and the film itself can be antibacterial and antioxidant. There is a growing interest to identify antioxidative properties in many natural sources of polyphenolic compounds for food preservation, such as murta ecotypes extracts and borage extracts. Recently, as a source of antioxidant polyphenols and physiological benefits, there has been an increasing interest towards the commercial use of rosemary extracts as application for foods. The antioxidation and bacteriostaticness of rosemary extracts have already been verified by many reports. This paper aims to study the effects of fish scale protein hydrolysates with addition of rosemary extracts on quality changes of crucian carp during 4℃ storage. After being gutted and washed, the crucian carps were immersed in 4℃ fish scale protein hydrolysates solution and fish-scale protein hydrolysates with addition of rosemary extracts solution respectively for 1.5 min, and then packed in plastic trays after being drained. All the packed fishes were put into refrigerator maintained at 4℃. In order to investigate the quality changes of crucian carp during 4℃ storage, total bacterial counts, 2-Thiobarbituric acid value, total volatile base nitrogen value, K value, weight loss and sensory assessment were observed every two days. The results showed that: fish scale protein hydrolysates can significantly ( $P<0.05$ ) inhibit bacteria growth and restrain the increase of total volatile base nitrogen value, 2-Thiobarbituric acid value, K value, sensory scores and weight loss for quite a long time (10 d) in contrast with the control and extend the shelf life of crucian carp during 4℃ storage for about 8 days; fish-scale protein hydrolysates with addition of rosemary extracts, however, can only restrain the increase of total volatile base nitrogen value, K value, weight loss and sensory scores for a short time (4-6 d) and failed to prolong the shelf life of crucian carp during 4℃ storage.

