Effects of various fermented soybean meal and rice bran levels on the growth of juvenile cobia *Rachycentron canadum*

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摘要

本研究探討不同的發酵大豆粉及米糠對海鱸幼魚成長的影響。實驗一對照組飼料全魚粉含 37%粗蛋白及 8%油脂，其餘實驗組飼料分別以三種不同發酵菌株 *Lactobacillus* sp. (I)、*L. sp.* (II)、*L. sp.* (III) 所發酵的大豆粉取代 40%的魚粉，每個實驗組共三重複。結果顯示，魚體增重在 296% 至 364%之間，同時以投餌 *L. sp.* (II) 發酵大豆粉之飼料，每日生長率、增重和飼料轉換率明顯較他組為高 \((p < 0.05)\)。實驗二對照組全魚粉含 37%粗蛋白及 8% 油脂，實驗組飼料則以米糠、*L. sp.* (II) 發酵大豆粉分別取代 40%的魚粉，每個實驗組共三重複。由實驗結果顯示，魚體增重在 466%至 478%之間，投餌 *L. sp.* (II) 發酵大豆粉飼料的每日生長率、增重、飼料轉換率明顯高於米糠組。綜合本研究結果發現 *L. sp.* (II)菌株所發酵大豆粉，可取代 40%魚粉添加，對海鱸苗的成長較佳，但在考量成本下，可於飼料中添加米糠取代 40%的魚粉來降低飼料成本。

關鍵字：海鱸、發酵大豆粉、米糠、乳酸菌。
Abstract

This study is to investigate how different fermentative soybean meals and rice bran can influence growth of juvenile cobia. In experiment one, the diet of control group were all fish meal containing 37% crude protein and 8% lipid. The other diets used fermented soybean meal made by three different fermentation strains *Lactobacillus* sp. (I) - *L. sp. (II)* - *L. sp. (III)* to replace 40% of fish meal, respectively. After 60 days, all were triplicated, samples gained weight ranged between 296% and 364%. The highest weight gain in of 40% *L. sp. (II)*. Weight gain, daily growth rate, feed conversion rate were significantly higher (*p* < 0.05). In experiment two, the diet of control group were all fish meal containing 37% crude protein and 8% lipid. The other diet used fermented soybean meal and rice bran by fermentation strains *L. sp. (II)* to replace 40% of fish meal, respectively. After 60 days, all the triplicated samples gained in a range of 466% and 478%. The highest weight gain found in the group fed of *L. sp. (II)*. Weight gain, daily growth rate, feed conversion rate were significantly higher (*p* < 0.05). The result showed that *L. sp. (II)* strain of fermented soybean meal can replace 40% addition of fish meal, because can enhance the growth of juvenile cobia. An addition of rice bran to the diet can also replace 40% of fish meal to reduce feeding costs.

Key word: cobia (*Rachycentron canadum*) - fermented soybean meal - rice bran - lactic acid bacteria