

AN ABSTRACT OF A THESIS

DETERMINATION OF ESSENTIAL AMINO ACIDS IN PACIFIC WHITE SHRIMP, *PENAEUS VANNAMEI*, USING LIQUID SCINTILLATION AND AUTORADIOGRAPHY

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Master of Science in Chemical Engineering

Four specimens of *P. vannamei* shrimp were each injected with an isotonic solution of uniformly labeled C^{14} - glucose. Two shrimp each were killed at 24 and 48-hour intervals and were processed to remove the fats and nucleic acids and the extracted protein was hydrolyzed. The amino acids in the protein hydrolysate were separated by 2-dimensional thin layer chromatography. Autoradiography of the developed chromatograms did not indicate any traces of radioactivity, maybe due to very small amount of radioactivity incorporated into the amino acids. The amino acids were scrapped from the chromatograms according to their R_f values and their radioactivity was measured in a liquid scintillation counter. Radioactivity was incorporated into alanine, aspartic acid, cystine, glutamic acid, glycine, proline, and serine. These were found to be the non-essential amino acids. On the other hand, little or no radioactivity had been incorporated into arginine, histidine, leucine, isoleucine, lysine, methionine, phenylalanine, threonine, and tyrosine. It was inferred that *P. vannamei* couldn't synthesize these amino acids from the feed supplied and are essential for the growth of the shrimp.

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