Calcium and Magnesium Concentrations in Water and Soil for Pacific White Shrimp (*Litopenaeus vannamei* Boone, 1931) Culture

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**Abstract**

Calcium and magnesium concentrations in water and bottom soil of white shrimp culture ponds were studied both in low (10 ppt) and high (30 ppt) salinity raised system. In hatchery tank water, the results showed that most average concentrations of calcium and magnesium were higher (P< 0.05) than estimated value except for magnesium at high salinity raised tanks. Besides, the relation between calcium or magnesium concentrations in low salinity raised tanks and shrimp production were quite low when compared to the high salinity raised tanks whose correlation coefficient (r) were -0.510 and 0.525 respectively. At farm level, the calcium and magnesium concentrations in water of low salinity raised ponds were 1.58 and 0.35 of the estimated value compared to the high salinity where the average concentrations were only 0.76 and 0.16 of the normal. However, the relation between calcium or magnesium concentrations and shrimp production were more obvious in high salinity raised pond soil, especially, magnesium concentrations in pond soil during the second and third month which had r values of 0.842 and 0.510 respectively. Six liming materials commonly used in shrimp culture were tested for calcium and magnesium increasing in the water. The results showed that burnt dolomite and hydrated lime were effective in low salinity while burnt shell lime was the most effective in high salinity water. The conclusion indicated the possibility to increase shrimp production by applying magnesium liming in the second and third month especially in high salinity raised culture. Dolomite was recommended as a liming material due to its low dissolubility and magnesium donator property.

**Key words:** White shrimp *Litopenaeus vannamei*, calcium, magnesium

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