

Abstract

Semi-intensive aquaculture using ponds is among the most common practices of fish production, whose output depends highly on the ponds' natural primary productivity. With the increased sustainability and health concerns with artificial fish feeds and chemical fertilizers, organic manure has been credited as a cheap, safe and sustainable alternative source of aquaculture nutrition. Apart from supplying nutrients to the phytoplankton, organic manures supply food directly to zooplankton and fish, provide substrate for microbes and improve water and pond sediment quality. Vermicompost fertilizer (excrete of earthworms) has been recognized as a potential pond fertilizer because it has superior nutritional quality (of up to five times), contains microbes, and is in ready-for-uptake form. Besides, the vermicompost contains humic acid, which has antibiotic properties, and promotes fish gut health, stress management, and immune systems. Nonetheless, the application of vermicompost fertilizer in aquaculture is still not a common practice. Therefore, this study reviews the concept of vermiculture vis-à-vis pond fertilization and the various utilizations of the vermicompost in fish farming. This is to enable fish farmers to make an informed decision on identifying and selecting proper biofertilizer, which can increase yields and cut costs of production, thus maximizing profits and improving resource utilization.