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Organic Substance Removal from Pla-Som Family Industrial Wastewater through APCW System

Authors : W. Wararam, K. Angchanpen, T. Pattamapitoon, K. Chunkao, O. Phewnil, M. Srichomphu, T. Jinjaruk

Abstract : The research focused on the efficiency for treating high organic wastewater from pla-som production process by anaerobic tanks, oxidation ponds and constructed wetland treatment systems (APCW). The combined system consisted of 50-mm plastic screen, five 5.8 m3 oil-grease trap tanks (2-day hydraulic retention time; HRT), four 4.3 m3 anaerobic tanks (1-day HRT), 16.7 m3 oxidation pond no.1 (7-day HRT), 12.0 m3 oxidation pond no.2 (3-day HRT), and 8.2 m3 constructed wetland plot (1-day HRT). After washing fresh raw fishes, they were sliced in small pieces and were converted into ground fish meat by blender machine. The fish meat was rinsed for 8 rounds: 1, 2, 3, 5, 6 and 7 by tap water and 4 and 8 by rice-wash-water, before mixing with salt, garlic, steamed rice and monosodium glutamate, followed by plastic wrapping for 72-hour of edibility. During pla-som production processing, the rinsed wastewater about 5 m3/day was fed to the treatment systems and fully stagnating storage in its components. The result found that, 1) percentage of treatment efficiency for BOD, COD, TDS and SS were 93, 95, 32 and 98 respectively, 2) the treatment was conducted with 500-kg raw fishes along with full equipment of high organic wastewater treatment systems, 3) the trend of the treatment efficiency and quantity in all indicators was similarly processed and 4) the small pieces of fish meat and fish blood were needed more than 3-day HRT in anaerobic digestion process.

Keywords : organic substance, Pla-Som family industry, wastewater, APCW system
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