A REVIEW OF PALM OIL MILL EFFLUENTS (POME) AS AN ALTERNATIVE FERTILIZER ON OIL PALM

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ABSTRACT

A REVIEW OF PALM OIL MILL EFFLUENTS (POME) AS AN ALTERNATIVE FERTILIZER ON OIL PALM

Oil Palm cover has growth in the last decades, the significances improvement in palm oil production resulting escalation level of effluents know as by-product of fresh fruit bunch (FFB) processing. Palm oil mill effluent (POME) is treated as unwanted product because the cost to maintain before discharge to environment is extraordinary expensive. Palm oil mill effluent palm oil mill effluent (POME) contains high solid, oil and grease with thick brownish liquid including, biological oxygen demand (BOD) and chemical oxygen demand (COD). The aim of this review paper is for discovering the potential an alternative fertilizer could be discover form palm oil mill effluent (POME) as a resource that can be benefit to the oil palm industrial. Several treatment technologies created for palm oil mill effluent (POME) treatment, from the time when the straight release of palm oil mill effluent (POME) unpleasantly disturbs the environment. Due to the high availability of total solids in palm oil mill effluent (POME), efforts have been through to alter this waste into valued products such as an organic fertilizer. Even though palm oil mill effluent (POME) is naturally organic, it is quite problematic to decay in natural conditions. Earthworms can digest the palm oil mill effluent (POME) creating valuable products such as vermicompost. Vermicompost is a beneficial product high in nutrients that can be recycled as nourishment in oil palm plantations. This review deliberates several current treatment methods of palm oil mill effluent (POME). Palm oil mill effluent (POME) can be efficiently treated by using alternative method which is recommended as a good sustainable management practice of this waste.

CHAPTER ONE

1.0 INTRODUCTION

Malaysia is one of the rapidly growth major crop in oil palm. Aside from Indonesia, Malaysia is second largest exporting countries which consists of 35 percent total market numbering at 18.8 million tonnes in 2012. Formerly known in West Africa, *Elaeis guineensis*, the scientific names for oil palm dates as a staple food back from 5000 years ago. In Malaysia, as a result from British Industrial Revolution and the massive naval trade movement, the first commercialize plantation was founded in 1917 in Tennamaran Estate in Selangor to replace existing coffee bushes (Tate et al. 1996). Henri Fauconnier and his friend Hallet from France, has been recognized as the developer of oil palm plantation in Malaysia. At that time, palm oil are commercial in production of soaps, lubricants and edible oils. In 2020, it is estimated global demand for palm oil is increased from 52.1 million tonnes in 2012 to 68 million tonnes.

Derived from mesocarp, palm oil produce oil that can be consume. Estimated about 10 – 35 tonnes of fresh fruit bunch (FFB) produced from one hectares of oil palm approximately 2.74 acres (Singh et al. 2010). With lifespan about 20 – 25 years economically, oil palm can life over 2 centuries. Nursery period for plants is 11 - 15 months and after 32 - 38 months after planting the initial harvesting can be undergo. It require 5 to 10 years to attain the highest yields for palm oil. Around 45 to 56% from the Fresh Fruit Bunches and the extraction oil can be obtain via the fruits, mesocarp. It is estimated about 40% to 50% oil are extracted from the kernel (Kittikun et al. 2000). Estimated about 1 tons of CPO, crude palm oil might be produce in 5.8 tonnes fresh fruit bunch (FFB) (Singh et al. 2010)