

RECENT ADVANCES IN BIOENVIRONMENTAL ENGINEERING

■ Suleyman A. Muyibi ■ Maan Alkhatib ■
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CHAPTER 1

Pretreatment of lignocellulosic Oil Palm Empty Fruit Bunch wastes as valuable carbon source for production of useful cellulases enzymes

**Mohamed Ismail Abdul Karim, Faridah Yusof , Manisya Zauri Abd. Wahid and
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Introduction

In recent years, there are growing interests shown by researchers to explore the possibility of utilizing agro-residues as valuable source of carbon and energy that can be utilize by microorganisms during fermentation process to produce many useful products including enzymes. There are abundant sources of wastes generated from the processing of many agricultural commodities in Malaysia and other oil palm producing countries, however, not much effort has been given in tapping these agro-wastes materials as value added materials.

In Malaysia, palm oil production is one of the major agricultural industry found which generated about 17.1 million tons of oil palm empty fruit bunch (OPEFB) (MPOB, 2006) as agro-wastes. Most of the generated OPEFB ends up in landfill or being burned indiscriminately causing environmental pollution and green house emission. Only a small amount of it was utilized as fertilizer (Lim, 2000), mulch (Hamdan et al. 1998) and to generate energy at the oil palm mill (Ma et al., 1993). The OPEFB fiber generally contains 40-45% cellulose, 19-21% hemicellulose and 18-21% lignin (Astimar et al., 1997) which contain good sources of carbon as energy source. The OPEFB can be a potential source of