

**NATURAL POLYMER COMPOSITE FROM OIL PALM DECANTER CAKE
(OPDC)**

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ABSTRACT

This project was conducted to develop the natural polymer composite (NPC) from oil palm decanter cake (OPDC). OPDC is one of the wastes at oil palm mill with solid form that has been taken from FELDA Trolak Palm Oil Mill, Perak. This solid OPDC was treated with several types of treatment and chemical. OPDC was treated with alkaline treatment (NaOH), acid treatment (H_2SO_4), and peroxide treatment (H_2O_2). OPDC with different percentage (5%,10%,15%) then was extruded into rectangular shape with polypropylene using twin screw extruder machine (TSE-16 PRISM, USA) and hot press mould machine. The sample then was tested with several tests to gain primary data of mechanical and physical properties of the NPC product.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Palm oil (*Elaeis Guineensis*) was originated from Guinea rain forest, West Africa. *Elaeis Guineensis* is one of the largest and important oil producing crops throughout the world. Oil palm has higher oil content and the highest potential of oil yield per acre when compared to other vegetable oils (Anyane, 1961). Rewind from past century, West Africa was the center of palm oil production in the world. Palm oil and, later, palm kernel oil were used in soap, candles, and early margarine production. Today, oil palm is cultivated around the world, with large plantations in both the East Indies and Central America. In West Africa, palm oil is the main source for filling the fat and oil requirements in the diet. Non-edible products are made from palm kernel oil. There are other oil palms products which are of cultural, domestic, and local economic value. These are referred to as by-products in the plantation industry.

Palm oil has produced a lot of waste from milling operation and from the field. There is more than one type of waste produced by oil palm plant. Oil palm trunk (OPT), oil palm fronds (OPF) was a waste produced at field while empty fruit bunch (EFB), palm pressed fiber (PPF), palm shell and palm oil effluent (POME) with also oil palm decanter cake (OPDC) is produced at oil palm mill as waste (N. Abdullah and F.Sulaiman, 2013). This waste before are less concern by people because less research has conduct for the waste management and development. Nowadays, this increasing waste causing a lot of research