

Utilizing Sago (*Metroxylon* spp) Bark Waste for Value Added Products.

✓ Khairul Aidil Azlin Abd Rahman,
Universiti Malaysia Sarawak (UNIMAS), Malaysia
azlin@faca.unimas.my

Abstract

*Sago barks are prospectus for bio-composite in technical and for resource availability consideration. The area under sago cultivation in wild and semi-wild condition is estimated at 19,720 hectares. Today, the total area planted with sago is over 28,000 hectares. Sago (*metroxylon* spp.) bark is waste material in the sago production industries. The locals use the barks of the trunk as timber fuel, temporary walls, ceilings and fences. At present, sago barks are processed through bio-composite method to produce sago plywood and particleboards, which have potential in building material. However the process does not utilize the natural feature and the beauty surface of the sago bark. The aim is to create products that involve recycling waste sago barks into value added products that is good in appearance, performance and reliability. Through the exploitation of sago bark waste, a promising materials resources to be used for global environmental conservation and sustainable development.*

Key words: sago bark, eco design, waste to wealth.

1. Introduction

In Malaysia in particular, some of the agricultural wastes and their management practices pose significant environmental problems. The intention of Malaysian Government is to revitalize the role of agricultural sector in the development of Malaysian economy may intensify these issues. The demand for better agricultural waste management is vital. Agricultural wastes can have direct and indirect impacts on the environment, which would eventually affect human health and welfare. However, agricultural wastes are potential resources, in that most of the wastes could be reprocessed and transformed into beneficial products. The possibility of recycling or reusing agricultural waste such as sago bark is successfully demonstrated in this research.

2. Objectives

The main objective of the research is to utilize the waste material into useful products. The component of the study comprise physical characteristic, development

process of new material for value added products and development of finished prototype by using the new material.

3. Literature Review

Sago, a crop which grows well on Sarawak's peat soil, has been identified great potential for commercial plantation and value added processing. Over 1 million hectares of peat soil is available in Sarawak, giving sago on a large commercial scale much more room for expansion. The area under sago cultivation in wild and semi wild condition is approximately 19,720 hectares. In addition, commercial cultivation of sago management techniques has been initiated by Sarawak's Land Development Authority (LCDA) [1]. Today, the total area planted with sago crops is 28,000 hectares. Sago starch is a valuable source of carbohydrate and it is widely used in food industries.

Sago palms have always flourished in the proximity of peat swamp areas. It is generally acknowledge that the sago palm prefers moist environment and is therefore found along riverbanks, around water holes and in swamps. A large scale planting of sago palms was initiated in 1986 with the opening of three sago plantations namely, Mukah Sago Plantation (MSP), Sebakong Sago Plantation (SSP) and Dalat Sago Plantation (DSP). Manufacturing off sago starch at industrial scale from sago palm plants in the plantation may provide an alternative way in order to create crop fields from tropical peat swamp forests instead of extinction of tropical forest or any of present crop fields. Ishizuka *et al* [2] stated that the plantation may result in large production of starch for the global industries, development of economy in the region and the global change in human society, change of ecosystem and other things. It looks like sago palm plantation may play an important role in prevention of global environment against the green house effect. In Sarawak, sago palm is the only crop that is capable of giving sustainable economic return on peat swamps. It was reported that sago palm is one of the highest yielding crops in the world. The export of air-dried sago flour is about 50,000 tones a year by the smallholdings in Sarawak.

4. The Tree