

PRODUCTION AND PROCESSING OF SAGO: A FOOD AND FUEL ALTERNATIVE

Kopli Bujang

Director

Centre of Excellence for Sago Research (CoESAR)

Universiti Malaysia Sarawak

94300 Kota Samarahan, Sarawak

Malaysia

Email: bkopli@pps.unimas.my

INTRODUCTION

Starch is considered to be one of the world's most abundant plant products and a major source of energy in the human diet. The world production of starch is estimated to be around 27.5 million tons. The global consumption of sago starch lies between 200,000 to 300,000 tons per annum and accounts for about 3% of the total world market which is dominated by corn, potato and tapioca starches.

The sago palm grows with minimum care, apart from some ground clearing during its first year of growth and is known to be hardy without any serious disease. Although the initial waiting period is long (up to 10 years for the plant to be harvestable), sago is the world's highest starch producer at 25t/ha/year, 4 times higher than rice, 5 times than corn and wheat, and almost 17 times of tapioca (Ishizaki, 1997). The main advantage of the sago palm over other cash crops is that it is the only commodity that can grow in peat soil which occupies approximately 75% of Sarawak's coastal plains and lowland river basins.

In Malaysia, more than 90% of all sago-planting areas are found in the state of Sarawak in East Malaysia. The largest (75%) sago planting area is Mukah where over 50% of the sago starch is produced. The annual export of pure sago starch from Sarawak fluctuates between 30,000 to 50,000 tons procuring incomes between US\$3.4 million to US\$10.8 million. About 100,000 tons of sago starch is used annually in Malaysia for various applications, mainly in the production of glucose (15,600t), MSG (15,000t) and noodle (13,200t) while other household uses account for 36,000t (Bujang, 2006).

Research on sago at Universiti Malaysia Sarawak (UNIMAS) is focused on both upstream (genetic development on starch synthesis and early maturation) and downstream processes. This paper will converge on the modification of sago starch and sago effluent as a vital source of food and energy of the future.

DEVELOPMENT OF FOOD PRODUCTS FROM SAGO

a. Sugars

On a per caput basis, the amount of sugar consumption in this country is about 50 kg (raw equivalent), one of the highest in the region. The cultivation of sugarcane in Malaysia is relatively small and its production is concentrated in the northwest extremity of Peninsular Malaysia in the states of Perlis and Kedah (FAO, 1997). Although the annual production of sugarcane is relatively high at 1.3 to 1.6 million tones, the sugar recovery is rather low at only 7%/kg fresh weight. Lack of raw materials and increases in industrial applications of cane sugar naturally lead to higher price of this commodity.