



Zuraida Ahmad

# SAGO

*(Metroxylon Rottb)*

*And Its Applications*

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Editor  
Zuraida Ahmad



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# Contents

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<b>Preface</b>	<b>vi</b>
<b>Chapter 1</b> <b>Sago, Its Properties and Applications: A Review</b> <i>Nurizan Omar, Nur Humairah, Maziati Akmal and Zuraida Ahmad</i>	<b>1</b>
<b>Chapter 2</b> <b>Comparative Study between Sytandard and Commercial Sago Starch</b> <i>Norhuda Hidayah Nordin, Zuraida Ahmad, Nurizan Omar and Tuti Yasmin Alias</i>	<b>17</b>
<b>Chapter 3</b> <b>Albumen-Thermoplastic Sago Starch Reinforced Cotton: Agro-Green Composites</b> <i>Yusliza Yusof and Zahurin Halim</i>	<b>27</b>
<b>Chapter 4</b> <b>Bioethanol Production from Sago</b> <i>Maizirwan Mel, Husna Muhammad Nadzri, Mohd Hider Kamarudin and Mohd Ismail Abd Karim</i>	<b>41</b>
<b>Chapter 5</b> <b>Optimizing Bioethanol Production from Sago Starch in Bioreactor for Renewable Energy</b> <i>Mohd Hider Kamarudin, Maizirwan Mel and Mohd Ismail Abdul Karim</i>	<b>59</b>
<b>Chapter 6</b> <b>The Effect of Saccharification Process of Sago Starch into Sugars</b> <i>Maizirwan Mel, Husna Muhammad Nadzri, Mohd Hider Kamarudin and Mohd Ismail Abd Karim</i>	<b>71</b>

<b>Chapter 7</b>	<b>79</b>
<b>Feedstock Preparation of Injection Moulded Stainless Steel Using Biodegradable Starch Binder</b>	
<i>Mohd Afian Omar, Istikamah Subuki, Nor Syakira Abdullah and Tuti Yasmin Alias</i>	
<b>Chapter 8</b>	<b>87</b>
<b>Sago Starch–Nanoclay Biocomposites Film</b>	
<i>Nurizan Omar, Norazah Ishak and Zuraida Ahmad</i>	
<b>Chapter 9</b>	<b>101</b>
<b>Preparation and Characterization of Glycerol Plasticized Sago Starch-Kenaf Core Fibers Biocomposites</b>	
<i>Norshahida Sarifuddin, Hanafi Ismail and Zuraida Ahmad</i>	
<b>Chapter 10</b>	<b>115</b>
<b>Preliminary Study on Superabsorbent Polymer Hydrogel from Sago Starch</b>	
<i>Nurizan Omar, Norhuda Hidayah Nordin and Zahurin Halim</i>	
<b>Index</b>	<b>125</b>

# Chapter 9

## Preparation and Characterization of Glycerol Plasticized Sago Starch-Kenaf Core Fibers Biocomposites

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**Preview.** In recent years, a great progress has been achieved in the development of ecological products based on agricultural materials in order to solve problems generated by plastic waste. Sago starch is one of the promising materials that can be converted into thermoplastic materials by plasticizing with glycerol. However, the properties are not satisfactory. One significant approach is the use of natural fiber as the reinforcement. In recent work, thermoplastic sago starch/kenaf core fiber (TPSS/KCF) biocomposites were prepared via melt-blending technique. The properties were optimized by varying the fiber loading (0-35 wt. %) and its effects were characterized in terms of mechanical performance, Fourier Transform Infrared (FTIR) and X-ray diffraction (XRD) analysis, thermogravimetric (TG) behaviour, water uptake and morphological properties. Tensile strength and Young's modulus appears to be markedly improved with the addition of 30 % by weight of kenaf fibers. FTIR and XRD results indicated changes in the functional group and crystallinity, respectively, with the incorporation of KCF into TPSS matrices. The thermal stability and water resistance of TPSS reinforced by KCF were obviously improved. Moreover, the mechanical properties of biocomposites were