

2002 TAIWAN INTERNATIONAL SCIENCE FAIR

CATEGORY : Environmental Science

PROJECT TITLE : The Usage of Bananan Stem in The
Production of Baby's Diapers

AWARD : Third Award

SCHOOL : Convent Bukit Nanas High School

FINALISTS : Nurha Iman bte Zamri

Tan Lay Hooi

COUNTRY : Malaysia

ABSTRACT

Title: The usage of the bananan stem in the production of baby's diapers

In this project, the stem of the banana tree is innovated into the absorbent substance in the baby's diapers. A water proof material too has been innovated . In the study carried out, several changes has been identified in the production of an environment friendly disposable diapers.

The structure of water molecules and cellulose as well as charges in both materials will enable cellulose present in all green plants to absorb water easily and effectively. Cellulose is also insoluble in water or solvent. This project uses the banana stem due to its high cellulose content and furthermore the cellulose present has a very fine structure which will increase its absorbency rate. Baby's urine will be absorb into the absorbent material through capillary actions due to surface tension that develops between the cellulose and baby's urine.

The absorbent substance in baby's diapers available today in the market is made up of Polyacrilate (SAP) and cellulose which are extracted from hardwoods, particularly pine trees. The production of the absorbent substance from the cellulose will help to reduce the logging of hardwoods.

評 語

本研究利用香蕉樹幹之纖維素研製嬰兒尿布，由於 cellulose 之吸收及防水特性，經將香蕉樹幹切成小片後利用機械設備及 hydro pulping 機製成 pure cellulose，經精練後予以脫水，以 60℃烘箱製成吸收材質，經實驗測試其研製之 cellulose 具較大之表面積，在環境中容易分解對嬰兒不具副作用，並可大量減少樹木之砍伐及化學藥品之使用，甚具研發推廣之價值。