2002 TAIWAN INTERNATIONAL SCIENCE FAIR

CATEGORY：Environmental Science

PROJECT TITLE：Tharn Din-Alternative Energy Source of The Future

AWARD：Second Award

SCHOOL：Sa-nguangying School

FINALISTS：Kunvalee Jusomjai

Thunpinit Russameethongchai

COUNTRY：Thailand

ABSTRACT

CATEGORY: ENVIRONMENT
TITLE: THARN DIN - ALTERNATIVE ENERGY SOURCE OF THE FUTURE
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This scientific research project "Tharn Din - Alternative Energy Source of the Future" is directed toward producing a new type of soil charcoal, Tharn Din, with excellent combustibility. The experiments were divided into six steps. First, we selected soils of exceptional adhesion property. Next, we looked into many different combustible materials for soil admixtures. Many different formulas of soils and admixtures were tested. The most promising formulas were then optimized for maximum combustibility. After which, the best formula was chosen and we further optimized its combustibility. Combustion and ignition rate and characteristics of this formula were investigated. And lastly, the effect of surface area on combustible rate was examined. It was found that mud was the best adhesive and wood chip was the best admixture. Tharn Din made of one part of mud and 3 parts of wood chips released higher thermal energy than normal charcoals. We found that a special type of Thai soil, Din See-eaw, when mixed with wood chips created Tharn Din of exceptional combustibility. Ignition and combustible rates are proportional to the surface area of Tharn Din.

評　　語

本研究探討利用 wood chips 與 Mud 或 Mire, Clay 混合研製可以替代 charcoal 之家庭用能源，並將產品研製成多種環狀以達家用目的。經測試發熱值及燃燒時之氣味，認爲此種 Tharn-Din 產品深具替代 charcoal 成爲家庭用能源之潛力。本研究能利用當地環境之材質，將之化腐朽爲神奇，確爲環境科學優秀之作品。