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Inclusive Agri-food Energy Production for Community Empowerment in a Changing Climate

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"Inclusive Agri-food Energy Production for Community Empowerment in a Changing Climate"

PRODUCT-14

DESIGN AND BUILDING OF COCOPEAT AND COCONOUT FIBER SEPARATOR MACHINE

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Abstract— Coconut is are common plant and found in all island of Indonesian. Fiber as waste of coconut is very potential for strengthening materials on composites. The other part of the coconut fiber is coconut dust or cocopeat. This substance binds well nutrients so that it suits as growing media in particular for plants that use hydroponic methods. Both materials are environmentally friendly and give add-value of coconut. Since separation process between cocofiber and cocopeat need special treat in order to prevent fiber from being broken or on the contrary not being separated. This research developed machine which has capability to solve this problem. This machine was powered by 22 HP and 110 RPM engine diesel which is connected to rotary shredder through double pulley-belt transmission system. Separation was done by using lane and hole in the cylindrical tube of the machine. The capacity derived was 75 kg/ hour.

Keywords—Coconot fiber, cocopeat, separator machine

PRODUCT-15

PREPARATION AND PROPERTIES OF BIODEGRADABLE SAGO STARCH-WATER HYACINTH BIOCOMPOSITES

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Abstract— In this study, Cellulose Microfibers (CMF) was isolated from using water hyacinth by pulping and beaching method. Water hyacinth (WH) has high potential to be CMF because its cellulose content is quite high. CMF manufacture process start was alkalized with 18 w/v NaOH solution and bleached with 5 % NaClO2. After that, CMF from water hyacinth reinforced with sago starch matrix. Biocomposites are made by using casting solution and glycerol as plasticizers. The results show that the SS15CMF sample has the highest tensile strength of 10,23 MPa. The addition of CMF WH in biocomposites leads to moisture absorption, crystallinity and thermal stability have increased. The SEM image shows that the CMF WH is bound in a matrix. FTIR indicated the CMF WH biocomposites was hydrophilic. The biodegradation was determined by the soil burial test. The pure sago starch film were more rapidly degraded than CMF WH biocomposites.

PRODUCT-17

THE ADDITION OF THE GAMBIER LEAF RESIDU TO PROTECT ON PROTEIN IN THE FEED SUPPLEMENT FROM RUMEN DEGRADATION

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Abstract— The objective of this study was to determine the effect of the addition of gambier leaf residu (GLR) to protect the protein in feed supplement on its degradation rate in the rumen. Feed supplements made from red sugar, soybean meal, coconut meal, bran, tapioca, urea and minerals. The treatment of the addition of GLR was done at 4 levels ie 0, 2.5%, 5% and 7.5% in the feed supplement formula, tested in vitro methods. The results showed that the addition of GLR reduced (P<0.05) the digestibility of dry matter from 62.21% to 53.66% at 5% GLR level, decrease (P<0,05) The rate of protein degradation from 1.01% / h to 0.68/ h and decreasing NH3 concentration of rumen fluid. The percentage of Rumen Undegraded Dietaty Protein increased (P<0,05) from 30,13% to 44,16%. The final protein product in rumen is the total protein, showed an improvement from 319.14 mg / g to 462.00 mg / g. Based on the result of this research, it is concluded that the best level of addition of gambier pulp in supplement feed is 5% level.

Keywords— feed supplement, gambier leaf residu, protein degradation, RUDP, total protein