



Academicth

INTERNATIONAL WORKSHOP
ADVANCES IN CLEANER PRODUCTION

“CLEANER PRODUCTION TOWARDS A SUSTAINABLE TRANSITION”

Life Cycle Impact Assessment Panels Obtained from Green Coconut Husk

FREIRE, A. L. F. ^{a,c*}, FIGUEIRÊDO, M. C. B ^b, ROSA, M. F. ^b, ARAÚJO JÚNIOR, C. P. ^c

a. Universidade Estadual do Ceará, Ceará

b. Embrapa Agroindústria Tropical, Ceará

c. Universidade Federal do Ceará, Ceará

**Corresponding author, feitoza_ana@hotmail.com*

Abstract

This study evaluates the environmental impact of coconut husk panel with dimensions 11 cm x 11 cm x 5 mm with a mass of 0.071 kg, density 1.29 g / cm³, whereas their life cycle. The product system comprises the processes: opening the coconut, husk processing, transportation of raw material (dust and fiber), energy production and panel production. The panel production is a macro process unit comprises the following processes: sieving the powders and kiln-drying, grinding fiber, fiber oven drying, and pressing of the panel. The impacts were evaluated by the CML method (2001), for the categories: depletion of abiotic resources, acidification, eutrophication, global warming, depletion of the ozone layer and human toxicity. The results indicate the panel pressing as the largest contributor to the analyzed impact categories. The production of electrical energy required in the press is responsible for these impacts. The processing of the bark contributed 71% to the eutrophication category, given the high organic content of the effluents. The transport contributed 18.9% of impacts on acidification categories and depletion of abiotic resources by truck operation and fuel use. The results show three critical points: Energy consumption in the panel pressing stage, transportation of raw materials and the effluents generated in the processing step of the shell. To improve the environmental performance of the panel suggests to evaluate: i) reduction of energy consumption in pressing, ii) and evaluation of wastewater reuse in irrigation of plants.

Keywords: *evaluation of the life cycle (LCA), environmental impact, green coconut husk panel*