

# From corn skin waste into furniture

Randy Rentanaka , M. Raihan Fadhillah , Fransiska Theresia

Supervisor : Denni M sianipar

Dr. Wahidin Sudirohusodo , smp\_wsh@yahoo.co.id

## 1. Introduction

The skin of corn (*Zea mays*) that become waste around my house by sellers of roasted corn that have been thrown everyday  $\pm$  5 kg of skins of corn (*Zea mays*) . That causes a large number of flies and the smell less savoury led to make the environment less clean which certainly can cause many diseases And when the rains come the corn skin carried by rainwater into drains that led to the flood. And this became a big problem around my neighbourhood plus more human resources are very less is causing these wastes become one big problem that must be solved immediately.

On a day when I am doing experiment at school I bring the corn skin and I'm discussing with my biology teacher what substances that carried in the skin of corn (*Zea mays*) and after we was doing some research , in the skin of corn contained of Hemi cellulose, cellulose, Lignin, which implies there is also in the material that usual use for manufacture of particle board . From here I was inspired to use the corn skin into the Board , it can be made into particle board with additional material Polyvinyl Acetate and the manufacture of this Board desperately is needed by many people.

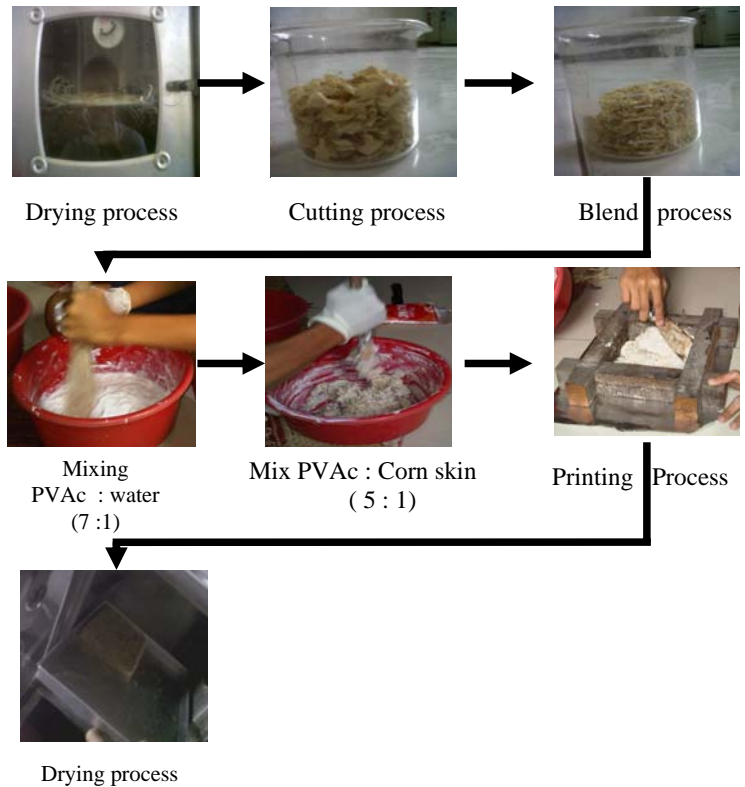
Because board is one of the primary needs that produce from the stem plant board this currently it is difficult and expensive to be manufacture to fulfill the consumers needs . This problem has not become a strange in the ears of society, especially the community in Indonesia, The big exploitation of woods causing massive forests become bald so that led to the disaster, floods, erosion and the hottest issue is global warming .

## 2. Research purpose

To get a cheap particle board, natural, efficient and environmentally friendly, does not contain harmful chemical substances as well as utilize waste and to get furniture from corn skin particle board .

## 3. Research Methodology

1. Dried the skin of corn with use oven in  $150^{\circ}\text{C}$  for 60 minutes
2. Cut the corn skin into small pieces to make the miling process become more easier
3. Blend it by using blender for about 5 minutes to get a soft fiber
4. Mix the Polyvinyl Acetate (PVA/PVAc) with water in ratio 7:1 to get the glue of Polyvinyl Acetate (PVA/PVAc)
5. Mix the Polyvinyl Acetate (PVA/PVAc) with the corn skin in ratio 5:1
6. Then put into the particle board mold, give it a press until it evenly .
7. Dried it with use oven in  $150^{\circ}\text{C}$  for 75 minutes .



## 4. Result and discussion



## 5. Conclusion

The skin of Corn turns out to have a purpose that is for the manufacture of particle board because it contains the chemical compound of hemi-cellulose, lignin, and cellulose and inside the Polyvinyl Acetate (PVA/PVAc) there is a resin (SAP) that acts as adhesive which is natural, cheap and environmental friendly and now our place become a clean and healthy place because we already use it as a raw material for manufacture particle board .

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