

Utilization of coconut coir sack waste become eco-friendly canvas material

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INTRODUCTION

Sack waste is found around us, like waste of sacks and sacks made from coconut coir are usually used by farmers and plantations as sacks for delivery of tobacco, cloves, coffee, tea leaves, etc. Many of us find used sacks made of coconut coir that have been damaged, torn and wasted. The estimation for amount of coconut coir produced by Indonesian reaches 1 million tons/year [1]. This time only a small portion of coconut coir is used, among others, as filler for seats, cars, mattresses and doormats. Most of the coconut coir is disposed of and becomes waste. Coconut fruit consists of coir (exocarp), shell (endocarp), flesh (endosperm) and coconut water. The composition of components of coconut fruit is coir 35%, meat 28%, water 25% and shell 12% [2]. Coconut coir is the yield component with the largest percentage and has benefits for sacks, crafts, agriculture. Coconut coir fiber can be distinguished based on its size and utilization, namely; Mat/Yarn fiber is a long and fine fiber (suitable for making mats, rugs and ropes). Bristle fiber is a coarse fiber (for making brooms and craft materials) [3].

Currently, coconut husk is mostly wasted as waste and as fuel. The results of combustion will produce smoke and pollution, air pollution affects the environment and adds CO₂ in the air, the longer the oxygen reaction will occur and there will be large pollution and there is a possibility that climate change will occur. The current processing of coconut coir waste is usually for agriculture, a mixture of planting media, natural pots, propagation media, and some are processed as industrial raw materials and household furniture. In addition, coir is very useful for making planting media, such as being made into grow bags. Grow bags made of coir and grow bags filled with coir can help facilitate plant growth and strengthen your plants' roots. Potential using coir as a growth medium soil amendment for agricultural, These qualities make coir an ideal growth medium. The coconut husk's singular function in nature is to protect the coconut [4].

Research before is to create value-added opportunities that utilize coconut shell powder and coconut husk fibers (coir) to make polymeric composite materials that can be competitive in high volume industries like automotive parts or building construction materials [5]. The use of coir fiber instead of agar during the initial phase of seed germination and seedling development offers a less costly alternative for cultivating [6]. Coconut coir has benefits for agriculture and horticulture, besides that it is also a planting medium that can fertilize plants, because plant roots will develop and grip tightly on the coconut coir media. Also this coconut coir can be developed into various products, including coco peat, coco fibre, coco mesh, coco pot, coco fiber board and coco coir [7].

METHODS

The research for potential to be developed coir waste sack for action research to less pollution. This research was a action research with descriptive study method using a qualitative approach and action research data. Data collection was carried out through several methods including site observation, in-depth interviews, document study methods. The sampling technique was carried out by using purposive sampling method [8]. Data were analyzed using an interactive analysis model. The action that will be taken is to try to use the research results into a prototype work related to the utilization of coir waste sack into canvas was environmentally friendly works of art with coir waste sack which is considered more durable, long lasting and strong, attractive and expressive. In addition to action research analysis, this research also used method to assess coir waste sack potential to support the canvas development of eco-friendly eco-art

RESULTS AND DISCUSSION

Potential process to coconut cultivation, extraction and processing of coir for eco-friendly eco-art. because Coconut husk or exocarp consists of a water-resistant outer shell and a fibrous part or mesocarp consisting of strands of "vascular" fibers called "Coir". Coconut coir fiber is diverse, there are advantages and disadvantages of each fiber sack. The denser the sack, the stronger it will be, and for the weakness of natural fibers such as different fiber sizes and the age factor of the fiber greatly affects its strength. The development of natural fibers as a reinforcement for composite materials is very good considering the availability of natural fiber raw materials in Indonesia is quite abundant [10].

Coir is also very resistant to bacteria, fungus, and mold, and, since coir is inert, insects don't like inhabiting it. This makes painting using coconut fiber sack media more durable, not moldy, and the fibers are denser covered with paint. The rough and strong texture is unique in the work of this painting, resistant to weather, water, heat and the result is a rough texture. especially with abstract or surrealism style.

Table 1. Comparison for durable of cloth standart of canvas with coconut coir sack waste canvas

Type	Results
Reguler cloth canvas	Bacteria, fungus, mold
Premium cloth canvas	Durable, Fungus, mold
Coconut coir sack waste	Durable, Anti-bacteria, Anti-fungal/mold

Table 2. Comparison for quality of cloth standart of canvas with coconut coir sack waste canvas

Type	Result
Reguler cloth canvas	Strong, mild, soft , thin
Premium cloth canvas	Strong, mild, sleek, soft , thin
Coconut coir sack waste	Very strong, heavy, less absorption, sleek, thick



Figure 5. Cloth of Canvas



Figure 6. Coconut coir sack waste



Figure 7. Detail of Stretching Coconut coir sack waste on span wood



Figure 8. Detail of Coconut coir sack waste



Figure 10. Coating on Coconut coir sack waste



Figure 11. Coating full canvas on Coconut coir sack waste



Figure 12. Artwork painting on Coconut coir sack waste



Figure 13. Other Artwork mixmedia painting on Coconut coir sack waste

CONCLUSION

Coconut coir is used in various products, such as for agriculture, a mixture of planting media or as horticultural grow bags, in addition, coconut coir is used as bags, sacks, ropes, mats, handicrafts, mats. There are also those who use coconut coir waste as industrial fuel, and the need for cooking fuel in households, but this becomes pollution and damages the clean air we breathe because of the increase in carbon dioxide and can damage the lungs and climate change. To reduce the waste of used sacks made from coconut fiber, ideas and ideas are needed to use them as a medium for work. Utilization of waste coconut fiber sacks into painting canvas media and eco friendly media is one answer in reducing waste that pollutes the environment and air due to burning. There are many movements in the use of coconut fiber, but this research focuses on reducing the waste of used sacks made from coconut fiber. The results showed that canvas made from coconut husk sacks had stretch strength, was more durable, thick, not easily damaged by heat and water, not moldy and free of bacteria, and was very effective and inexpensive compared to conventional canvas made of thin fabric.

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