

Innovation and Application of Jute Straw Instead of Plastic Straw as a Sustainable Product

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Abstract

Jute straws are durable, user-friendly, 100% plant-based material, biodegradable and decompose naturally. It can be used multiple times at home, just clean it with hot water and let it dry for the next time. Jute drinking straws do not get soggy in any kind of drinks, even suitable for hot drinks. I consider it one of the best eco-friendly innovations of mankind. The purpose of this study is to describe the innovation of jute straw and also the history behind it. This study has also described the applications of jute straw in different ways. It is an original innovation in my personal life. So all data used in this study is primary. Here I also described how a jute straw is eco-friendly as a drinking straw. I have also described the production process of jute stick straw and at the end of the study, I have described the benefits of juice straw and the environmental subject of our future.

1.0 Introduction & Background of the Study

Jute straw is one of the most affordable natural straws, and second only to stick in the amount produced and variety of uses. Jute straws are composed primarily of the plant materials cellulose and lignin. Jute straw falls into the bast straw category. The jute plant needs plain alluvial soil and standing water. The suitable climate for growing jute (warm and wet) is offered by the monsoon climate, during the monsoon season. Temperatures from 20 to 40 °C (68–104 °F) and relative humidity of 70%–80% are favorable for successful cultivation. Jute requires 5–8 cm (2–3 in) of rainfall weekly, and more during the sowing time. Soft water is necessary for jute

production. 'The jute straw can be used instead of plastic straw' - was my unique idea. There is a long story behind it. Let's first, talk about the story.

I have been working as a University Teacher for the last ten years. From the beginning of my career, I had my desire to do something different other than what everybody does in conventional teaching. Being a teacher of product development, I always have preferred to teach the product development module. As we know, the academic spectrum is somewhat having integration issues while incorporating and implementing the industrial approach. Yet, my thoughts were always to bring about a sustainable amalgamation between sustainability and saving the environment at the same time and implement this both from academic and practical perspectives.

One fine morning, my friend Mr. Habibur Rahman Manik and I were walking outside for a morning walk and discussing the concerning issues in regards to the rise of global warming. Professionally both Mr Manik and I are Teachers, Mr Manik has been working in a College as a Mathematics Lecturer, and I am working with a University as a professor of Fashion Designing and product development.

After a couple of hours of walking on a scorching sunny morning, we were exhausted and thirsty. We stopped at the local green coconut vendor's van and asked for two green coconuts. The seller handed us coconuts and obviously with two plastic straws. As I said that I always have thought to do something different, this time the plastic straw has struck my attention. I thought of an alternative to this plastic straw. We discussed if we can use natural products like Bamboo straws, nut plates, coconut glass etc. Finally, the matter of using Jute Straws to replace the plastic one came up from my mind. Manik has nodded the idea positively and decided to join me in developing jute made straw.

The next day we went to different places and markets and tried to source the jute sticks that we can use for making the jute straw but we had been challenged by problems after problems to decide about the proportion of the size of holes in the jute straw and we had to solve those. Finally, my manufacturing sense has worked well and a new idea came up of developing a straw combining both bamboo and jute.

2.0 Objectives of the Study

The main objective of the study is to describe the innovation of jute straw and also the history behind it. Another objective is to describe the applications of jute straw in different ways. This study will also describe how a jute straw is eco-friendly as a drinking straw. Here we will also try to know the production process of jute stick straw and at the end of the study, we will also try to know the benefits of juice straw and the environmental subject of our future.

3.0 Description of the item

Jute straw is manufacturing by the Jute Stick Straw company in Bangladesh and West Bengal, India. To deal with plastic pollution we are putting forward our eco-friendly product to the entire world.

We have suitable conditions for growing Jute naturally. But we realized that Jute stem is an agricultural by-product and it is usually treated as waste in our country. So we decided to change it and prevent wasting of natural resources.

Jute Straws are organic and natural and we don't use any chemicals to process our products so naturally, it is safe for health. We produce all sizes of eco-friendly Jute drinking straws.



Jute Straw

- Uses: Drinking straw (for hot and soft drinks, even it can be used as chopsticks).
- Height: 8.5" (all sizes are available).
- Diameter: 2.5mm to 5.0mm.
- Color: Natural.
- Material: Jute stem
- The average weight of single straw: 1.40gm.
- Lasting: Disposable in the open sky in 5 years.

4.0 Comparison with eco-friendly drinking straw

Best five eco-friendly straws ever.

- Jute Straws
- Bamboo Straws
- Wheat Straws
- Grass Straws
- Paper Straws

These are the best eco-friendly straws. They are made from organic sources. You can clean them with warm water. These are long-lasting and durable straws (except Paper Straws). It would be best if you bought this for daily use.

a. Jute Straws:

These are durable, user-friendly, 100% plant-based material, biodegradable and decompose naturally. It can be used multiple times at home, just clean it with hot water and let it dry for the next time. Jute drinking straws do not get soggy in any kind of drinks, even suitable for hot drinks.

b. Bamboo Straws:

The best advantage to use bamboo straw is that it is eco-friendly, natural & organic, and reusable. It can be used as a drinking straw for both hot and cold drinks, whether it is chilled smoothies or hot coffee.

c. Wheat Straws:

It is an eco-friendly product. Wheat drinking straws do not get soggy in liquid-like cocktails, lemonades, juices, and soft drinks.

d. Grass Straws:

Grass Straws can fully be replaced with plastic straws in every aspect. Advantages,
– Eco- friendly, biodegradable and affordable, safe for health.

e. Paper Straws:

These are best for restaurant and bar owners. However, these are single-use straws, but compostable and biodegradable.

Jute straws are cheaper than other eco-friendly straws. It's organic and handicraft. We have suitable conditions for growing Jute naturally. But we realized that Jute stick is an agricultural by-product and it is usually treated as waste in our country. So we decided to change it and prevent wasting of natural resources.

Jute Stick Straw Company is the solution when you want to substitute harmful single-use plastic straws with a green item. Our straws come from 100% plant-based materials. Jute straw comes from Jute stem which is why they decompose naturally. Jute stick straws are genuinely eco-friendly as we use raw materials from renewable resources. We are trying to give a usable substitute for plastic straws.

5.0 The production process of Jute Stick Straw

Harvesting: Jute is harvested between 120 days to 150 days from sowing when the flowers have been shed. Early harvesting gives good healthy fibers. The harvested plants are left in the field for 3 days for the leaves to shed. The stems are then made up into bundles for steeping in water. Steeping is carried out immediately after harvest.

Retting: Retting is the process of extracting fiber from the stems of the plants. The various ways of Retting but among them, in our areas, there is only one way of retting and that is the water or microbial retting is a century-old but the most popular process in extracting fine fibers. (However, the selection of these retting processes depends on the availability of water and the cost of the retting process).

After harvesting, the jute stalks are tied into bundles and submerged in running water. The stalk stays submerged in water for around 20 days. However, the retting

process may require less time if the quality of the jute is better. In most cases, the fiber extraction process of fibers in water retting is done by the farmers sitting on the Khatal(A temporary water-level bench, made of Jute stem) or standing underwater(in other villages)

When the jute stalk is well retted, the stalk is grabbed in bundles and separated fiber from the jute with a handy process. After losing the fiber, we collect clean wet Jute stems and then dry them in the sunlight for 10-12 days. After then we work on the Washing, Cutting, Hygienic, and Packaging process.

Production process of Jute Stick Straw: Firstly, the hollow stems of jute are collected, which are washed and then cut into perfect shape and size next we clean the inside of the hollow stems then they go through the Hygienic process, and next for the packaging process. For washing, we use Neem leaves and hot water. Usually we boiled it for 10 minutes. Sometimes we use salt at hot water in trade of Neem leaves. And eventually, Jute straws are ready to go in the market.

6.0 Benefits of Jute straws

- A better replacement for plastic straws.
- It's disposable.
- It comes from the wastage of natural resources.
- It's cheaper than other eco-friendly straws.
- Lightweight (average weight of each straw is 1.40gm).
- They can be used as Chopsticks.
- The straws can be reused.
- Jute straws are durable, user-friendly, 100% plant-based material, biodegradable and decompose naturally.
- It can be used multiple times at home, just clean it with hot water and let it dry for the next time.
- Jute straws are a natural product so it's genuinely organic.
- We don't use any chemicals to wash them.
- Jute drinking straws do not get soggy in any kind of drinks, even suitable for hot drinks.

To save our Mother Nature we have stepped forward to deal with plastic pollution and we think that's how the Mother Nature will be benefited.

7.0 Best Substitution for Plastic Straws

Jute Stick Straw is the best substitution for harmful plastic straws. It's eco-friendly, disposable, and cheaper than other Eco-friendly Straws. We are the manufacturer of Jute Stick Straws there in Bangladesh and Nadia district of West Bengal, India.

We are trying to utilize our natural resources to deal with plastic pollution. We have realized that Jute stems can be used as drinking straws so we manufacture Jute Stick Straw and it generates part-time job vacancies for women in our village. They work from home to treat mankind and our mother nature.

After separating the fiber from the Jute stem 40% of dry Jute stick/dry Jute stem goes to waste and we are trying to reduce the percentage of wastage by turning it into a useable drinking straw and its better! Rather than going to waste.

To the entire world, Plastic pollution is a big problem these days so we have taken a little step to deal with this problem with our creative thoughts.

We are Introducing our eco-friendly and disposable drinking straw to the world.

8.0 Conclusion

Initially, our main focus was to save the environment from global warming and save the trees and stop the use of plastic products. Due to sporadic cutting of trees the global warming has risen record high, it's high time to ensure the environment is saved for the generations to come. Though introducing a Jute-Bamboo straw seems a tiny attempt to save nature, we deemed that we are doing at least something to save our environment from the damage. For the last seven months, our idea has proceeded much ahead from the scratch. Now people have started to use straws made of Jute and Bamboo for drinking coconut or cold drinks. It is our satisfaction that we have contributed this super idea to save nature from further destruction caused by plastic.

In course of time, we have added another new product called luffa sponges. We can use them for dishwashing, body washes (bathing) exfoliating, cleaning around the house, scrubbing the pet etc.

Two more products are under development that we would likely incorporate leap plate and nut plate which we can use for domestic and commercial purposes. We are also working on handicrafts products like jute laundry baskets, floor mat, rugs, plants pot, toys, wall mat, jute bags, coconut braids etc.

We have a plan to develop organic garment products like T-shirts, Polo-shirts, sweater, outerwear, active wear, and Sportswear. We have some quality natural products like special Banana, Lemon, emblica vegetables etc.

However, I just shared my idea with my Boss Mr Benson Mah, whom I consider a true leader and a great motivator. He keeps appreciating and supporting me to uphold this project. We are determined to do something for our nature and our society and develop ourselves as a brand as a whole. Our mission is not only to replace the plastic straw while saving nature.

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