COVID-19 Research

Research Area:

Personal protective care equipment.

Project Title:

Fabrication of biodegradable material for personal protective care equipment's.

Expected Outcome:

Personal protective care equipment's (PPCEs) plays a vital role in preventing transmission of viruses during epidemics. These protective equipment's consists of garments such as gloves, mask, gown or coverall which are used to protect the health care workers. Apart from the treatment centers, they are also used by persons related to activities like waste management, cleaning and community care works related during the outbreak. The expected outcome from the present investigation is the fabrication of biodegradable material for personal protective care equipment's having antibacterial and fluid-resistant properties. The methodology to be followed for the fabrication of the biodegradable material for PPCEs is shown in Figure 1. It consists of converting the extracted bamboo fibre into bamboo charcoal embedded bamboo fibre yarn for fabricating the biodegradable material for PPCEs treated with antibacterial and fluid-resistant agents.

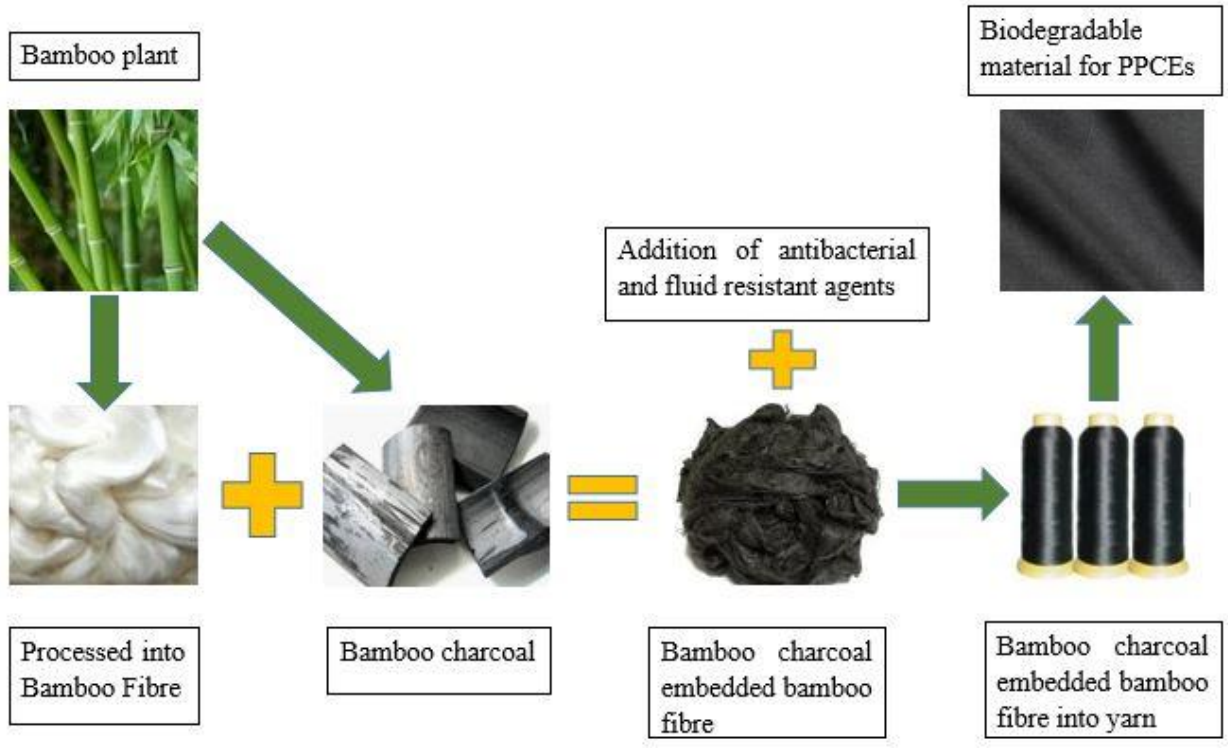

Figure 1: Steps for fabrication of biodegradable material for PPCEs

Expected Timeline:

The expected timeline for the project is shown in Figure 2.

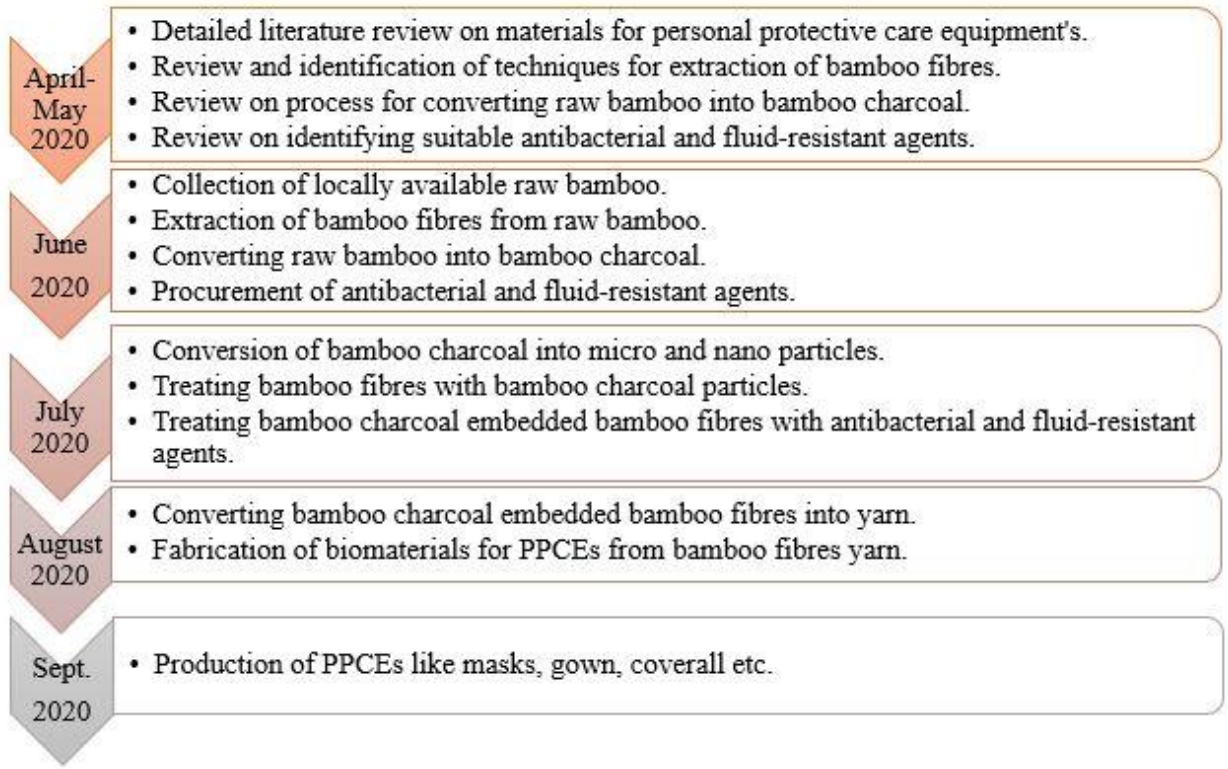

Figure 2: Expected timeline for the project

Remarks:

The existing materials used for the personal protective equipment (PPE) account for up to 20% of solid waste. Also, the majority of this waste is not biodegradable. Moreover, down-cycling, up-cycling or recycling of the cleanroom garments and gloves are not recommended because of the adverse effects associated with it. It is extremely important for fabricating ecofriendly and sustainable material for PPCE's. Bamboo being one of the easily available and economical natural fibre available in the state of Arunachal Pradesh can go a long way for producing biodegradable materials for various PPCE's. These materials can be used for producing various PPCE's which can be used by the frontline workers during any epidemic situation and can be easily disposed off, thus minimizing waste and without affecting the environment.

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