

# **Biomass-based biodegradable materials**

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## **Submission Category:**

we would select the submission category from (A) Technical research proposal to solve concrete problems that we will introduce two bio-based materials that can alleviate the pollution problem of white plastics, and this material also gets rid of the dependence on petroleum-based raw materials.

## **SDGs Targets:**

We consider our sustainable development goals should be affordable and clean energy among the 17 goals to transform our world. The production of two biomass-based degradable materials that are widely used in all aspects of life is the goal of this proposal. Obviously, with the development of social economy, the crisis of global petroleum resources, the serious pollution of white plastics, the low utilization rate of biomass resources, and serious waste of resources are gradually emerging. The development of biomass-based degradable materials technology can fundamentally solve the above problems and promote sustainable development. The proposed sustainable goal is to use low-value biomass as a raw material to completely replace petroleum resources to produce degradable film and renewable polyurethane foam, to get rid of the dependence of film and foam on petroleum resources, and to solve refractory plastics.

## **Abstract:**

With the development of society, the crisis of petroleum energy has arisen, which has attracted the attention of researchers. Therefore, it is necessary to find a low-cost raw material that can replace petroleum-based raw materials to solve this crisis. This project can fundamentally solve this problem. Far-reaching development significance. At the same time, the project utilizes resources such as low-value biomass including agricultural waste fermentation industrial waste, which can alleviate the problem that the accumulation of low-value biomass in industrial development is difficult to deal with, to prevent pollution of the environment and improve energy efficiency. Kills two birds with one stone. The purpose of this proposal is to produce biodegradable film and sustainable polyurethane foam using biomass waste citric acid fermentation industrial waste as raw material, and one of them is to degrade the film, we used citric acid residue as biomass raw material, pretreated and blended it with PVA to produce a biodegradable plastic film. The experimental results show that the membrane performance is

excellent. Not only is it degradable, but it also has the function of slow-release P, which further improves crop yield when compared with traditional non-degradable plastic film. The other is bio-based rigid polyurethane foams which from citric acid fermentation industry wastes was prepared in 50ml centrifuge tube by one-step method. After being characterized by sample properties, it has high compressive strength and low thermal conductivity, and is a foam material that can be used for thermal insulation.

### Graphical Abstract:

