



## Filtering heavy metal pollutants using radiation-processed fabrics



## ABACA NON-WOVEN FABRIC

Filipino chemistry researchers are using radiation to modify materials and graft various polymers to create useful characteristics such as filtering heavy metal pollutants. One of these materials is the fabric based on the native product **abaca** with synthetic polymers to develop a nonwoven fabric that can filter toxic heavy metals such as lead, cadmium, nickel, chromium, mercury and arsenic which can be harmful to human health and the environment.



- Studies showed that the radiation-modified nonwoven fabric is reusable and cheaper to use than commercial resins which have the same purpose, while also being on par, if not better, in filtering the waste.
- But the radiation-grafted abaca fabric's application for wastewater treatment is just the tip of the iceberg. Researchers are also exploring other possible applications of the fabric such as for recovering precious metals and as a catalyst for producing biodiesel.



The abaca is irradiated at the PNRI Electron Beam Irradiation Facility, which is further processed with synthetic polymers into its final form as a filter for heavy metals.

These fabrics can also recover precious metals and rare earth elements!



- The Philippines remains the world's largest producer of abaca, accounting for around 85% of the global production.
- Abaca is very useful and readily available.
- Using the natural fibers of radiationprocessed abaca, it can filter heavy metals dissolved in liquid.
- Abaca's natural strength withstands the radiation grafting procedure.





This project is a collaboration with Department of Science and Technology (DOST), DOST-Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD), and DOST-Philippine Textile Research Institute (PTRI).

## For more information, please email **information@pnri.dost.gov.ph**



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