Utilizing Chitin Extracted From Fungi and the Exoskelton of Blatella germanica for the Purpose of Being Resistant to Gamma Radiation

Alobaydiyen, Ghayda (School: International Proficiency Academy and Schools (IPAS))
Alabed, Juman (School: International Proficiency Academy and Schools (IPAS))

Is chitin resistant to Gamma radiation? On the span of years, there had been many problems regarding radiation from pregnant women incapable of entering radiation rooms to nuclear weapons. This project simplifies these complications by utilizing a basic substance that solves them on all aspects. Chitin, which is a large structural polysaccharide that contains nitrogen and is made from chains of modified glucose, had a demonstration made about the extraction of chitin from fungi using concentrated HCL then filtered by distilled water, fungi was then put in the oven to become dehydrated. Afterwards it was tested on by FTIR instrument to validate it being a true natural chitin. After the extraction, chitin was exposed to gamma rays and X-rays at different degrees (GRY) and degrees (SV), during the experiments procedure, the variable of chitins width was changed from 0.5 to 6 centimeter, which heightened the resistance of the substance to absorb radiation. Also adding the amount of radiation chitin has withheld was from 2 to 5 sevret. The thickness of the chitin layer is appropriate to prevent negative radiation damage. These experiments and different variables including: the amount of radiation and the width of chitin, got us the wanted data manifesting its resistance. These outcomes were the base to commence majority of the applications starting with: a suit for coverage and isolated rooms for radionuclides. Chitin can be reinforced using lead providing a stronger coverage and shielding, considering it to be a huge leap in the field of radiation.

Awards Won: