



Ensuring Accessible Healthcare

Nuclear Science and Technology Working for You

Local Production of Technetium-99m (Tc-99m)



*The Tc-99m hot cell facility inside the
Radioisotope Laboratory building*

Around 120 nuclear medicine facilities in the Philippines are licensed by PNRI. Many of these facilities use Technetium-99m and other radioisotopes for diagnosis of the state of health of various human organs and treatment of certain diseases.

With technical and financial assistance from the IAEA and the Department of Science and Technology (DOST), PNRI has established the first Tc-99m generator plant in the Philippines which will supply the local Tc-99m requirements of nuclear medicine facilities in the country. The facility will save the medical industry up to around 20 percent of the average cost for imported Tc-99m radiopharmaceuticals. Over 80 percent of the world's nuclear diagnostic imaging procedures rely on Tc-99m, with its applications ranging from lung, bone and renal scintigraphy, liver scanning, DMSA and DTPA renal scanning, gastroesophageal reflux, and continuous ambulatory peritoneal dialysis, among others.

Radiation-Processed Materials from Natural Polymers

VVP - CARRAGEENAN HYDROGEL DRESSING

PNRI successfully developed a hydrogel dressing for wounds, burns and bedsores based on carrageenan and polyvinyl pyrrolidone. Gamma radiation was used for crosslinking and sterilization of this product. With the trademark name of Skin-Up™, the product has been awarded with a patent and is ready for commercialization.

HEMOSTATS

Hemostats are materials used to help arrest bleeding of ruptured blood vessels. Hemostats with different formulations and forms were prepared from natural polymers and cross linked with gamma radiation. These formulations are being tested for hemostatic efficacy.

INJECTIBLE HYDROGEL IMPLANT FOR TREATMENT OF VESICoureTERAL REFLUX

PNRI researchers have developed an injectible hydrogel implant based on chitosan and polyvinyl pyrrolidone through radiation crosslinking. This can be used for endoscopic treatment of primary vesicoureteral reflux, a common urologic anomaly in children associated with urinary tract infection.

Wound Dressing



HONEY ALGINATE WOUND DRESSING

A honey alginate wound dressing was also developed from local honey sources to produce a cheaper and comparable alternative to commercial dressing for treating exudating wounds and burns. The application for utility model registration was filed at the Intellectual Property Office.

Nuclear Analytical Techniques in Harmful Algal Bloom Studies (Red Tide)



Collection of samples on algal bloom infested bodies of water



Analysis of gathered water samples with algal bloom infestation

The DOST - Philippine Nuclear Research Institute continues to develop the receptor binding assay (RBA) to complement the mouse bioassay in the early detection of harmful algal blooms or red tide. This technology can be used for measuring the red tide toxins that cause paralytic shellfish poisoning. PNRI has transferred the RBA technology to the Department of Agriculture - Bureau of

Fisheries and Aquatic Resources (DA-BFAR). The agency is now using the RBA in addition to the existing mouse bioassay technology for the toxicity analysis of paralytic shellfish poisoning in seafood.

The PNRI has been serving as the IAEA Collaborating Center for Harmful Algal Blooms since 2005.

PNRI Technique to Detect Synthetic Acetic Acid in Vinegar



Line up of vinegars available on the market that have been tested for adulteration

The proliferation of adulterated vinegar in the country has caused a lot of health concerns. The concerns related to the consumption of synthetic vinegar arises from the apprehension of using a mixture that may contain residual by-products in the form of formaldehyde, formic acid, and acetaldehyde which are all highly toxic and poisonous.

The DOST-PNRI has developed an analytical technique, popularly called Carbon-14 liquid scintillation counting, which can accurately differentiate natural vinegar



(fermented plant derived) from adulterated vinegar (with synthetic acid). This technique was able to detect more adulterated samples in the market than is indicated by the standard Permanganate Oxidation Number.

In a PNRI study, more than 300 vinegar brands sampled from major supermarkets nationwide were tested; and seven out of ten vinegar brands showed adulteration with synthetic acetic acid. Results of the study are being proposed as basis for formulation of the Vinegar Standards of the Philippines.