

Better Diets for Weaker Systems

Making Food Safer in Indonesia

Sri Wahyuni sorts through yellow and silver foil packages: "This is beef, this is from soya beans, and this is a small fish, my favourite," she says with a smile.

These are not everyday food dishes; they are carefully prepared and specially vacuum-sealed meals that have been treated by irradiation.

Sri has breast cancer. She was diagnosed in December 2007 and six courses of chemotherapy have weakened her immune system. The 57-year-old research scientist is taking part in an IAEA project that is developing safe food for so-called "immuno-compromised" people using irradiation technology.

"This project is about improving the patient's nutritional status by eating sterile food," says Sri. "I need better antibodies to make my immune system stronger and I hope to achieve this by eating this nutritional food."

The project, which involves 17 countries, is being coordinated at the IAEA's Headquarters in Vienna, Austria, by Food Irradiation Specialist, Carl Blackburn, who works in the Joint FAO/IAEA Division. "Including irradiated food in a restricted diet can increase the range of safe foods that a patient is allowed to eat and in this way can help improve the nutrition in their diet," he says.

"Another benefit is that irradiated meals need less intense preparation methods, so it isn't necessary to 'overheat' the food to make sure it's safe to eat," he says.

People with impaired immune systems, such as those undergoing therapy for cancer, suffering from HIV/AIDS or recovering from an organ transplant, are more at risk from food-borne disease.

"These people can't usually eat fresh and healthy produce like salads, fruit and vegetables because of fear of infection. But if the food is irradiated, it's safe since this process has killed any potential bacteria or other harmful microorganisms," adds Blackburn.

Research conducted under an earlier IAEA project showed that despite food irradiation's potential to reduce the risk of food-borne

diseases, there is little evidence of its wide-scale use to provide food for patients or other target groups who require this level of food safety.

According to Blackburn, the main aim of the project is to improve, and eventually increase, the variety and availability of nutritional food for people with special dietary needs, and to make hospital meals, which can be bland, more varied and appealing.

"Since starting this project, I've realised how important it can be to also provide a feel-good factor at meal times, especially for children," he says.

Including irradiated food in a restricted diet can increase the range of safe foods that a patient is allowed to eat and help improve the nutrition in their diet.

(Photo: L.Potterton/IAEA)



"This can be done by providing 'treats' like ice cream and local specialities, the dishes people would normally enjoy if they were not ill or hospitalised. So these kinds of food are also being developed under this project," he adds.

The IAEA project has brought together an international group of researchers, from North and South America, Africa, Europe and Asia, who are working together with medical professionals in their countries to develop the most appropriate types of safe foods.

In Indonesia, at the National Nuclear Energy Agency, BATAN, Zubaidah Irawati works as

a Food Irradiation Specialist and has been collaborating with the IAEA for over 30 years.

Irawati says: "I'm working with different groups of people, including scientists, regulatory bodies, government institutions, doctors and caterers. We're making tasty, ready-to-eat meals, based on traditional Indonesian dishes."

One of her research projects is in cooperation with the National Narcotics Board's Rehabilitation Centre in Sukabumi, west Java, where Irawati is working with former drug users who suffer from HIV/AIDS or hepatitis.

"We saw that by eating our irradiated food, the nutritional status of these people improved. I'm hoping to extend the project to include malnourished children in the future," she says.

Although this is a new project, Indonesia has been using irradiation to improve food safety and quality for over 40 years. It is one of 60 countries worldwide that are using the technique, which is approved by both the FAO and the World Health Organization (WHO).

"Food irradiation is of great importance here in Indonesia. It's a country with an abundance of spices, grains and fruits," says Irawati.

"But we have a hot, tropical climate with high humidity, so food can easily get contaminated with bacteria and insects and can spoil quickly."

Indonesia's commercial irradiation centre, Relion, in Jakarta operates seven days a week, 24 hours a day to accommodate the growing demand for food irradiation.

Some 150 products, including spices, grains and frozen and dried fish, are currently irradiated here for domestic and international markets.

The irradiation process applies energy from gamma rays, x rays or electrons to control insects and destroy harmful bacteria, which can cause food poisoning.

The process also extends the shelf life of food, since it destroys microorganisms, such as mould, that cause spoilage.

Food irradiation provides the same benefits as chemical treatment, heating, or refrigeration, but does not leave any harmful residues, raise the temperature or affect the taste and texture of food. It can also be used to treat packaged and frozen foods.

"For us, food irradiation means food safety, food security and food quality. It also enables producers to export more food so it's of economic importance too," says Irawati.

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