



IAEA

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Atoms for Peace

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Monitoring food fortification programmes in the Asia Pacific region using nuclear techniques

The challenge...

Micronutrient deficiencies (e.g. iron, vitamin A, iodine, zinc, folic acid, vitamin B complex) are a major problem in the Asia Pacific region, affecting millions of people, particularly children and women. Several of these deficiencies lead to chronic diseases, resulting not only in lasting health problems but also impairing economic progress in the region.

Strategies to address micronutrient deficiencies include supplementation, food and biofortification and diversification. Nuclear and isotopic techniques can be used to measure food composition and bioavailability, and to evaluate field trials related to food fortification and biofortification.

The project...

The project aimed to evaluate and monitor the food fortification intervention programmes in five participating Member States, and to develop rice mutants with low phytic acid from local high yield rice varieties.

The mutation breeding component of the project was carried out through national mutation breeding centres in five countries from the region (China, Indonesia, Pakistan, Thailand and Vietnam). Preliminary results of the trials organized under this project found that numerous mutant varieties were suitable for cultivation.

A standard methodology for isotopic analytical techniques was established. This was used to perform bioavailability studies of micronutrients using stable isotope tracers.

The impact...

- The low phytic acid trait created in rice has improved the nutritional quality of wholegrain rice.
- Some advanced mutant lines show an increase in micronutrients.
- The rice bran of the mutants developed under this project has improved nutritional quality for animal feed and has positive effects on animal nutrition and health.
- 95% of the phosphorus content in rice comes from phytic acid. The manure of non-ruminant livestock will as a result contain less phosphorus, which will help to address the problem of eutrophication.



Improved rice varieties



Enhanced foodstuffs

