Wholesomeness of Irradiated Foods

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Summary
The safety evaluation research on irradiated foods has a long history since the US Army Natick research institute started the research. Several hundred toxicological studies have been conducted on experimental animals over the past four decades. Many animal feeding tests including genetic studies of different types of irradiated food were carried out in many countries including Japan in the past five decades. The studies involved chronic feeding studies and mutagenicity. No transmittable genetic defects, teratology or oncogenic, have been observed which could be attributed to the consumption of irradiated diets. In the early 1980's, eight feeding studies using several irradiated food items, including irradiated wheat, were also conducted in China using human volunteers. The radiation chemical research on radiolytic products produced in irradiated foods revealed that most products were naturally present in foods or are formed by thermal processing and no evidence of their harmfulness has been found. This approach should be a good measure for safety evaluation as well as animal feeding studies. FAO, IAEA and WHO convened a number of Joint Expert Committees on the Wholesomeness of Irradiated Foods in 1964, 1969, 1976, 1980 as data became available to evaluate the safety for consumption of irradiated foods. These evaluations together with those carried out independently by national expert groups in Japan, the United Kingdom and the USA and other countries demonstrated no toxic effects as a result of consuming irradiated food with the maximum dose of 10 kGy. During September 1977, a study group meeting organized jointly by the WHO, FAO and IAEA declared that doses greater than 10 kGy will not lead to any toxic effects on human health. We should continue the effort on newly-detected unique radiolytic products such as alkylcyclobutanoens in irradiated food utilizing state-of-the-art _in-vitro_ toxicology tests based on cell cultures to facilitate public understanding of the wholesomeness, the combined notion of toxicological, microbiological, and nutritional suitabilities of irradiated foods.