

A review on microbial mutagenesis through gamma irradiation for agricultural applications

ABSTRACT

Gamma irradiation is widely used in sterilization and mutagenesis, especially for plant breeding and crop protection. Microbial mutagenesis through gamma irradiation is mainly applied in fermentation industry. In agriculture, gamma irradiation is mostly applied in crop improvement. Microbial mutagenesis is mainly applied against fungus and spore-forming bacteria, which are resistant to gamma irradiation. Response of microbes to gamma irradiation varies and depends on various factors. Review of previous works on gamma irradiation for microbial mutagenesis in agriculture may provide some information for the use of this method. The general view on gamma irradiation, its application, and mutagenesis are discussed in this paper. Further investigation on microbial mutagenesis should consider molecular changes, information on which is lacking in previous works. Moreover, studies on microbial mutagenesis are still lacking in Malaysia despite having several gamma irradiation facilities. Therefore, further studies on microbial mutagenesis should be conducted.

Keyword: Agriculture; Gamma irradiation; Microbial mutagenesis; Mutagens; Radiation