

# FAO/IAEA International Symposium on Plant Mutation Breeding and Biotechnology



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## MUTATION INDUCTION IN IMPROVING RESISTANCE TO DOWNY MILDEW IN QUINOA (CHENOPODIUM QUINOA)

Quinoa is a species native to South America. It is an important crop due to its nutritional characteristics superior to other food crops and its high tolerance to abiotic factors, it is also capable of growing in a wide range of altitudes and annual rainfalls ranging from 200 to 1,000 mm even with prolonged periods of drought. This ability to adapt to marginal conditions makes it a crop an alternative to face adverse climate changes. However, its development is limited by a number of factors such as its high susceptibility to pests, highlighting among them the disease downy mildew caused by the fungus *Peronospora variabilis*. The genetic control of downy mildew can eliminate or significantly reduce the use of fungicides and maintain the organic quality of the national production of great importance for the national and international market. There is evidence in many species that the induction of mutations can induce mutant lines in valuable commercial varieties; those that in addition to having resistance must maintain their potential for performance and quality. Seeds of quinoa cultivar Amarilla Marangani M3 generation irradiated with gamma ray were used and near to 420,000 seedlings were established. Considering the severity of the disease, a group of mutant plants were identified with resistance to downy mildew; 735 plants in the dose of 150 Gy and 701 in the dose of 250 Gy with a frequency of 0.82% and 0.82%, respectively.

### Country or International Organization

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