

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



Contribution ID: 121

Type: Poster

## APPLICATION OF GAMMA IRRADIATION FOR THE IMPROVEMENT OF CAULIFLOWER, CABBAGE AND CARROT IN MAURITIUS

The main crucifers (cauliflower and cabbage) and carrot are crops of notable economic importance in Mauritius. Black rot disease caused by the bacterial pathogen, *Xanthomonas campestris* pv *campestris*, is causing severe yield losses in these crucifers. The disease has evolved and the new strain causes leaf spot especially in cabbage leading to considerable loss in yield and quality of produce. Introduced varieties have been evaluated to identify tolerant ones with little success. On the other hand, carrot is susceptible to *Alternaria* leaf spot and in the recent years, carrot cultivation has been affected by carrot motley dwarf disease causing stunting of the plants as well as reddening and yellowing of the leaves. Thus, growers are now heavily dependent on imported hybrid seeds and also on chemical pesticides. Hence, developing mutant lines for these crops using induced mutation techniques could decrease dependence on chemical pesticides and imported varieties, and ensure year-round production. A study using nuclear techniques was initiated in 2016 and irradiation was carried using a Gamma irradiator from a  $^{137}\text{Caesium}$  source. Cauliflower was subjected to doses ranging from 500 to 1500 Gy, cabbage from 100 to 700 Gy and carrot from 25 and 45, 450-750 and 500-1500 Gy. The growth reduction dose at 50% was determined as 756 Gy for cauliflower, for cabbage it was 522 Gy while for carrot the GR30 was calculated to be 1075 Gy. Now that the GR50 and GR30 have been identified for all 3 crops, seeds will be irradiated and field testing be undertaken to identify mutant lines adapted in different agro-climatic zones and in different seasons.

### Country or International Organization

Mauritius

**Author:** Ms NOWBUTH, Rita Devi (Food and Agricultural Research and Extension Institute)

**Co-authors:** Mrs CAHOOLESSUR, Nema (Food and Agricultural Research and Extension Institute); Mrs HUZAR FUTTY BEEJAN, Priya (Food and Agricultural Research and Extension Institute); Mr SEEWOOPOOLAM, Ravi (Food and Agricultural Research and Extension Institute)

**Presenters:** Mr SEEWOOPOOLAM, Ravi (Food and Agricultural Research and Extension Institute); Ms NOWBUTH, Rita Devi (Food and Agricultural Research and Extension Institute)

**Track Classification:** Mutation breeding for adaptation to climate change in seed propagated crops