

FAO/IAEA International Symposium on Plant Mutation Breeding and Biotechnology



Contribution ID: 42

Type: Oral

60CO GAMMA IRRADIATION-INDUCED VARIATIONS IN VEGETATIVELY PROPAGATED PHILODENDRON ERUBESCENS 'GOLD'

Philodendron erubescens 'Gold', a popular climber with brilliant greenish yellow leaves (D 151 in RHS colour chart), is used in indoor gardening and landscaping. It is commonly propagated through vegetative cuttings, thus incorporation of new traits through conventional breeding is impracticable. As commercial floriculture always demands novel varieties, this study was carried out to induce variations in *P. erubescens* 'Gold' leaves through mutagenesis using gamma ray irradiation. Rooted cuttings (n=200) of *P. erubescens* 'Gold' were subjected to 70, 100, 150 Gy gamma rays and recovered in a propagator. Survived shoots were transferred to pots. Regenerated shoots were multiplied vegetatively and 10 M1 lines were maintained as M1-1 - M1-10 up to 12 generations (V12) to evaluate growth and morphological variations with their genetic stability. Of all 70 and 100 Gy treated cuttings, 12 and 1% respectively, survived after 6 months. Most of the irradiated plants had lost the regeneration ability except two M1 plants, which also showed comparatively a reduced growth (1 leaf in 45 days). Only one regenerated M1 plant showed morphological variations in leaves, which was multiplied and maintained as lines. Several variations including characteristics of leaves (shape, size, colour), stems (internodal length and branching) and plant stature were observed among M1 lines and in subsequent vegetative generations. Leaves were consisted with 3 different colour patches, however, neither the color distribution pattern was uniform nor stable. M1-4 line shows the highest stability of colour distribution in leaves; the colour composition of leaves ranged as 0-10% dark bluish green, 60-90% strong yellow green and 10-30% brilliant greenish yellow throughout the 12 generations. This study demonstrates that, gamma irradiated *P. erubescens* 'Gold' line M1- 4 can be a promising mutant to develop as a new *Philodendron* cultivar.

Country or International Organization

Sri Lanka

Author: Mrs KARUNANANDA, Dayani (Horticultural Crops Research and Development Institute, Gannoruwa, Sri Lanka)

Co-authors: Mrs RANATHUNGA, Ramya (Horticultural crops Research and Development Institute, Gannoruwa, Sri Lanka); Mrs ABEYSINGHE, Wathsala (Horticultural Crops Research and Development Institute, Gannoruwa, Sri Lanka)

Presenter: Mrs KARUNANANDA, Dayani (Horticultural Crops Research and Development Institute, Gannoruwa, Sri Lanka)

Track Classification: Mutation breeding for ornamental and vegetatively propagated crops