DNA Based Analysis for Distribution of *Meloidogyne* Species in Selected Crop Plants in Different Geographical Locations in Sri Lanka

D. Paramalingam[i], G.H.C.M. Hettiarachchi[2*] and R.V.D.U.P. Rajapakse[2]

Postgraduate Institute of Science, University of Peradeniya, Peradeniya, Sri Lanka
[2]Department of Chemistry, University of Colombo, Colombo, Sri Lanka

Meloidogyne species are highly destructive endoparasitic nematodes with a wide host range. Molecular identification of the *Meloidogyne* species that infect crop plants was performed in this study using *Meloidogyne* infected 28 root samples collected from four different crops in five different geographical locations in Sri Lanka during May to July in 2017; Passara (6.934909, 81.152698) tomato, Thanamalwila (6.439755, 81.133397) chili, Pallekele (7.280104, 80.702034) capsicum, Vellankulam (9.186089, 80.126481) chili, Kaluwanchikudy (7.529373, 81.794609) chili and Kaluwanchikudy (7.529373, 81.794609) okra. Polymerase chain reactions were carried out in these samples with MF/MR primer pairs, C2F3/1108 primer pairs and 194/195 primer pairs. Genus specific universal primers MF/MR amplified, 500 by fragment of ribosomal DNA of Passara tomato, Thanamalwila chili, Pallekele capsicum, Vellankulam chili and Kaluwanchikudy chili samples representing the presence of genus *Meloidogyne.* Primer pair C2F3/1108 amplified, 705 by fragment of mitochondrial DNA of Thanamalwila chili, Pallekele capsicum, Vellankulam chili and Kaluwanchikudy chili samples representing the presence of *Meloidogyne enterolobii.* Primer pair 194/195 amplified, 700 by fragment of ribosomal DNA of Passara tomato and Kaluwanchikudy chili samples representing the presence of *Meloidogyne hapla.* A mixed population of *M. enterolobii* and *M. hapla* was resulted in Kaluwanchikudy chili. Kaluwanchikudy okra did not produce any band with any primer pair amplifications revealing that it had unknown species. This study confirms the expansion of the distribution of *M enterolobii* and *M. hapla* in Sri Lanka in recent years. *M. enterolobii* was present in all the chili/capsicum samples tested and this is the first report of its availability in infested chili/capsicum plants in Sri Lanka.

Keywords: M enterolobii, M hapla, DNA based assays.